The Builder.

VOL. XV.—NO. 774.

NOTHING interferes more with the improvement of the masses of the people than the difficulty which exists of getting rid of old customs; for instance, the practice of keeping the dead before interment for a week or more, so hard to break down, has, in many instances, been the means of destroying the lives and health of the living. For many years infants were "swaddled" and bound up in the remarkable manner shown in old manuscripts and pictures. It would be as difficult to form an estimate of the number who have been killed by such processes as of those who have died prematurely from the effects of tight-lacing. At one time, in cases of small-pox and similar diseases, every breath of air was carefully excluded, as though that life-preserving element was an enemy instead of a friend. When this treatment was in fashion the small-pox was about as fatal as the cholera is now. Fever patients used to be closed up in a similar manner, and the beds of the sufferers were piled with blankets. We cannot wonder, under such circumstances, at the spreading of the disease.

All these evils, and fifty more, have been, to a considerable extent, lessened. There are, however, a large number of persons amongst the less educated with whom the fashion of former days is still considered the best, in spite of its evident ill effects. Many an intelligent artisan and his wife who would laugh at most of the practices alluded to, would decline availing themselves of a home, however wholesome, which did not present the appearance of those built upon the old plan. Thousands who feel the difficulty prefer the fashion, and with their families live in subdivided houses, where, in many instances, the benefit of privacy, cleanliness, and comfort cannot exist, in preference to occupying dwellings which, although different in outward form, have the means of family seclusion, and all the necessaries for health. It is a pity that it should be so, but such being the case it is necessary, in order to do good, to use means which, while being beneficial, will humour the prejudiced taste which exists; and credit is due to those who devise proper means of coaxing the great industrious multitude into the use of the kind of houses which are so much required. We have more than once suggested in these pages, how desirable it is to provide houses at a moderate rent which would afford the advantages of separate residences and other necessary qualities, and which would as nearly as possible present the appearance of the dwellings now in use.

We have found in one of the northern towns this principle carried out to a considerable extent in some of the new streets. The houses towards the road present a substantial-looking front, two stories high from the pavement, with rooms below looking into a very wide area. In the front of each house are two doors, fitted with knockers; one of these, by means of *a distinct passage*, leads to the ground-floor, and the other to the floor above, while a railed flight of steps affords entrance to the apartments below. We have thus in each house three distinct sets of rooms. The back is fashioned with galleries, something in the same manner as the model cottage which was erected by Prince Albert near the Great Exhibition, with staircases leading to the back premises. The upper and the ground floors of those houses, which consist of three rooms each, let for 10*l.* a year each (less than 4*s.* a week), including taxes; the places below for less: and we were told that they are occupied as quickly as they can be finished, by respectable workmen, and that they pay about 8 per cent.

Every single step of this kind is encouraging, and it is unnecessary to deny that many such have been taken. Notwithstanding the enormous extent of the ignorance yet prevailing, and the amount of work required to be done, all parts of the country show the gradual admittance of the truth of those principles from which improvement must result. Twenty years ago, the great mass of even the middle and well-informed classes were not aware of the dangers by which they were beset. Glance back to former times, and it seems remarkable how people could live at all. Take, for instance, many country villages: the houses were chiefly planted in the form of a street, in the centre of which were two rows of "midden steads" and pigsties: stagnant pools of the foulest description were collected in all directions, and the stale garbage and other refuse were left in small mountains in all seasons: there were of course cesspools in the rear, for no attempt at proper drainage had been made. The interior of the houses might be kept clean, but that did not prevent the breaking out of pestilence, which in a moderate degree was looked for with the coming of the summer leaves, but which at times became so serious as to terrify the people, who were then not able to trace the disorders to their cause. Small silk bags filled with camphor were hung round the necks of the children, as if that could neutralise the vile gases which were created around their dwellings. And bad as this was, the condition of the towns was worse. We recollect seeing in an important town a large churchyard raised to the height of not less than 12 feet above the proper surface by the mouldering dead. It was managed in a way which would perhaps have surprised even the workers in Spa-fields and some metropolitan grounds. People even then used to wonder how room could be made for more. But there was no George Alfred Walker to look in and investigate their "doings." It was by no means unusual to drain this ground without disguise, and let it run along the public street to the nearest gully-hole. If an inhabitant had at that time lifted up his voice against such a practice, he would have been thought fit for a place in the neighbouring lunatic asylum. Lanes thickly surrounded this graveyard, and one narrow turning led to a series of little squares and back nooks. There was no drainage in any part, and yet perhaps not less than 200 or 300 persons inhabited the houses which were reached by the narrow archway. There was also a long building used as a school, where nearly 200 children were constantly assembled. In front of the school was a place for all the refuse. Behind was a closet, with cesspool, which was constantly overflowing, and which was the only convenience for the boys, and for a large number of the inhabitants. At times the huge dirt-heap would be removed, and the task would occupy two or three days.

When cholera broke out in the town for the first time, not a single house in this court escaped; in some instances whole families were swept away: then the houses in these confined places were not supplied with water; people had none except such as they could catch from the drip of the roofs in rainy weather, or carry from the nearest pump or conduit; and that, added to total want of drainage and the accumulation of putrid refuse, caused an atmosphere indescribably close and oppressive. In many instances children's schools were kept down these courts, and lives innumerable were lost in consequence. Recollect, for another instance, the condition of the old town of Edinburgh at about the time mentioned; — the wynds, the lofty houses with common stairs, without water-supply or other means of cleanliness. Descending dust-shafts, such as those in our modern model houses, had not been thought of; no closets or water-cisterns were placed on each landing. So imperfect were the arrangements, that it was dangerous for the wayfarer to travel towards nightfall. Some of the more thoughtful of the Edinburgh dames would, it is true, considerately, from their lofty situation, exclaim, as warning to the passer-by, before throwing out the dust, "'Ware below! 'ware below!" This condition of affairs led, as may be imagined, to sad effects. It required no little amount of energy and love for the picturesque at that time to explore the stair which led to the room once occupied by Smollett, and other places of interest. Parts of Edinburgh are bad enough now, but it has been greatly improved since then.

It is of the utmost consequence that a knowledge of the laws which govern human life should be given to women. A frightful loss of infant life occurs through their want of this knowledge. In a certain unhealthy district of London, during one year, forty-four deaths occurred, and of these, twenty-six who died were children under five years of age. The difference in the proportion of deaths amongst infants in various localities shows that this loss is unnecessary. Thousands of preventible deaths which occur, both in London and the provinces, from other than sanitary imperfections, are clearly to be traced to the ignorance of the mothers in the simplest principles of healthful management. In the National and other schools in which the future mothers of the next race of English workmen are being educated, attention should be given to the instruction of the young, not only in sanitary matters, but as to the structure and functions of the body. To the mothers we have to look for the education of the world. "When shall I begin the education of my child?" said a young woman once to a wise man; "it is now four years old." "Madam," he replied, "you have lost three years already. From the first smile that gleams over an infant's cheek, your opportunity begins."

There is not a more terrible sight in the dark regions of London than to see mothers giving tender infants gin and other strong drinks,—an act of kindness as they think. Their ignorance of the effects of such treatment makes them wonder when the children wither away, and speedily die before their eyes. In nine cases out of ten, amongst the poorer classes, intemperate mothers are ignorant that by their course of life they either poison their infants, or, at any rate, weaken their systems. If the common and useful knowledge to which we allude was made a more important consideration, some might thereby be prevented from committing what they would know to be acts of wickedness. Quite true it is that "in exalting the faculties of the soul, we annihilate, in a great degree, the delusion of the senses."

In many poor neighbourhoods the quantity of laudanum and other opiates sold is extraordinary: by their means the children are drugged, and this causes a considerable increase in the list of deaths; nor is this dangerous and guilty use of opiates confined to the poorer and more ignorant classes, as may be seen by the advertisements of elixirs, soothing syrups, and cordials for children, which so constantly meet the eye.

The sanitary laws by which health is promoted, should be made a branch of the national education. Take a case to exemplify its necessity which came before us quite recently. A lady selected a farm-house, in a

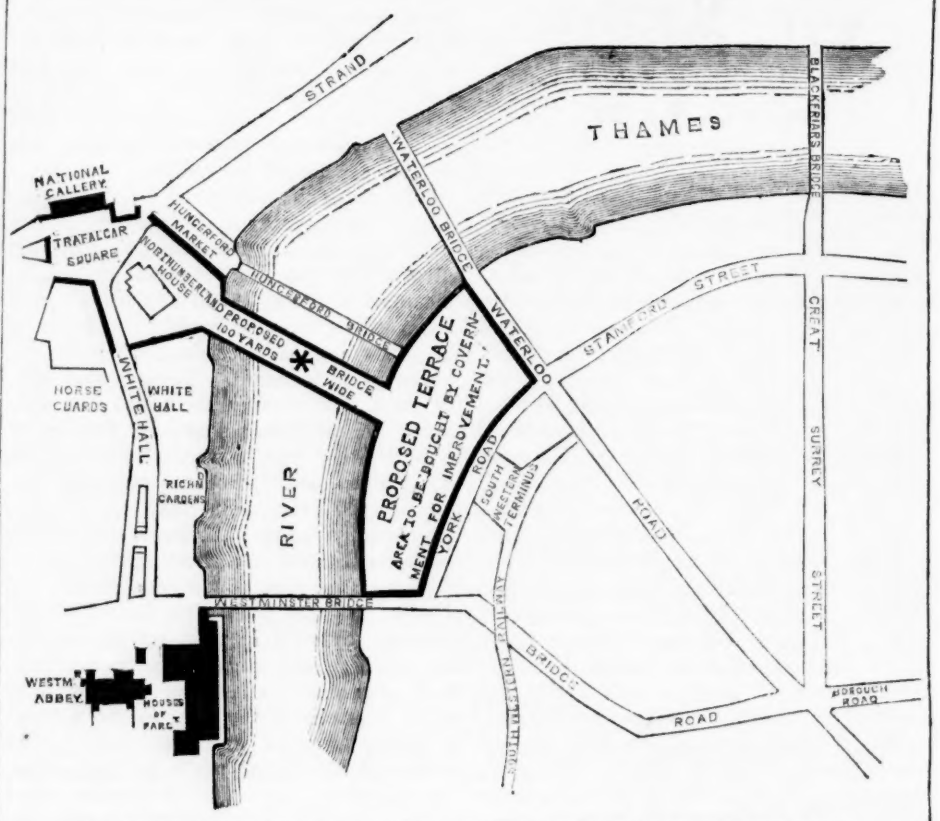
delightful part of the country, as a residence for herself and children during the summer. When there, she found that a horse-pond, which was at a short distance from the house, had an unpleasant smell; inside the rooms there was also an impure atmosphere, and it was discovered, on examination, that there was some communication by drainage between the cow-sheds and the house, and that the drains were all stopped. Men were set to work to put the derangement right, and the result of such an operation in the summer-heat may be readily imagined. As one fatal consequence, the children were stricken by fever, and in a few days *three of them died*. Now, if this lady had fortunately been in possession of the proper amount of sanitary knowledge in the choice of a place to which she might retire for a season, she would, in the first instance, have avoided the neighbourhood of a stagnant pond into which refuse ran; and when, being there, the drains were taken up, she would have escaped with her children from the house with as much activity as she would have run from a building on fire. Still, as we said before, knowledge is spreading, and life is gradually lengthening.

In the case of graveyards, a strong evidence of the advancing state of public opinion may be found in the general expression of horror which has followed the statements that have been lately made at the London Mansion-house, in connection with the disinterment of the dead in Moorfields burial-ground. It was difficult when we laboured on the subject, nine or ten years back, to make persons believe in the danger of the London graveyards. Fortunately, however, the truth was gradually impressed, and then, by the strong force of public opinion, a parliamentary enactment was obtained for the purpose of putting a stop to intramural interments.

Various circumstances have from time to time transpired in connection with closed places of sepulture to cause excitement,—the removal of coffins and their contents, to make room for the erection of dwellings; the carrying away of gravestones and other memorials by wholesale; and, although very large sums of money have been paid for accommodation in those spots, no sooner has the source of profit ceased, than (in many instances) they have been allowed to become scenes of desolation. Graves were bought at considerable prices, on the clear understanding that they were to be treated with consideration, and were freehold. Those who purchased gravestones and monuments, and who also paid for the privilege of fixing them over family graves, never expected that these would be carried away, and used for different purposes. Nor did they think that the bodies would be removed, the secrets of the grave fearfully exposed, and even the bones of their dearest sold. This is the private view of the subject. The public health is, however, a consideration of equal importance, and, to take the case before us, it seems ill-judged to attempt to plant a school for children on ground which has been shown by Dr. Letheby and others to be one mass of putrefaction.

The account of the condition of the bodies which were removed from Moorfields, is sickening. We acquit Mr. John Young, the architect, and Mr. Thomas Piper, jun. whose intelligence is so widely known, of voluntary contempt for public opinion, or wanton disregard of the dictates of common sense; but they seem, certainly, to have shown an amount of thoughtlessness scarcely to have been expected from them.

While upon this subject let us express a hope, that the managers of the cemeteries which have been recently opened, will avoid the practice of pit burial, the evils of which have been already so fully shown. We have had hints from good authority, that in some instances things are not working as they should in this respect. It must be borne in mind, that ere long London will march to Finchley and other places, and it would be a scandal if, with our past experience, we were to produce there that state of things from which we are now but just escaping.



A "CENTRAL PLACE" IN LONDON, UNITING TRAFALGAR-SQUARE WITH THE BOROUGH.

A "CENTRAL PLACE" IN LONDON,

UNITING TRAFALGAR-SQUARE WITH THE BOROUGH, ACROSS THE WATER.

The above small plan, for which I request indulgence, is in reference to my former letters that have appeared in pages 542, 561, 599, 604, and 636. It is restricted, of course, to a small extent as compared with London itself; nor can your readers fully view the bearing of the scheme contained in my previous letters without reference to a map of the whole metropolis. It comprehends, indeed, little more than the actual area suggested for improvement and its immediate neighbourhood.

This "Central Place" in London, uniting Trafalgar-square with the Borough, across the water, is indicated by the *broad dark line*. Its greatest extension, viz. from the National Gallery to the York-road, in the Borough, is somewhat over half a mile. It may be seen that the area on the north bank of the river would be of an irregular form, but that on the Borough side would admit of a justly symmetrical architectural treatment. This would give variety, and the bridge of 100 yards in width connecting them would afford a magnificent view of London, besides being a very grand feature in itself; and under certain regulations would relieve with facility the overdegree of traffic that now clogs the streets of the City.

The *star* in the centre of the bridge indicates the pivot of the scheme, being as near as may be the central point of present London, as is to be noticed in the Post-office district maps.

I have not indicated any lines of new streets in the Borough, such as would naturally arise out of the execution of such a plan, of a central area in the heart of London, because I desired to avoid embarrassing the simple idea with any details of further extension, especially as such details would naturally be guided by various considerations that I am unacquainted with, or, if I were, that I should not be fitted for dealing with, not having the honour to be, as I told you before, professionally an architect, although an enthusiastic admirer of that art.

You have so kindly given space to my previous letters on the above subject that I feel I should be presuming too much on your indulgence by a repetition of their contents. It will be, perhaps, therefore best simply to refer to them for the separate points which they brought under your notice.

In my first letter, page 542 of No. for Sept. 19, I set forth the general plan and bearings of the scheme as it affected the health, traffic, and adornment of the metropolis.

In my second letter, page 561 of No. for Oct. 3, I further detailed the same points, and showed some of the advantages which would directly accrue to Lambeth without detriment to the more aristocratic part of the town.

In my third letter, page 604 of No. for Oct. 24, I set forth expressly the architectural and general art efforts which would arise from such a treatment of the heart of London.

In my fifth letter, page 636 of No. for Nov. 7, I dwelt on the great importance of the "quadrant space" comprised between the bend of the river opposite Charing-cross, the South-Western Railway, and the Waterloo and Westminster-bridge-roads, being cleared of its present habitations and inhabitants, it being now a centre hotbed of moral and physical disease, and suggesting the purchase of this area by Government as a first step; submitting also that it would not, in any case, be an unprofitable application of public money.

Those of your readers who have been sufficiently attracted by the scheme, can easily apply to the above plan those letters which appeared before, in enumerating which I feel somewhat aghast at the space I have taken up. Their subject is one on which much more remains to be said, but I am sensible, on the other hand, that through your pages I have had quite my proportion of "say;" for the opportunity of which I am much indebted to your courtesy.

Epsilon.

ART IN ARCHITECTURE.*

Aristides' Treatise "On the Sentiments and Capabilities of various Styles,"—with the Discussion thereon.

The wordy war raging between the Gothicists and Classicists begins to assume now an unpardonable ferocity. This second invasion of the Goths on Classic ground promises to be almost as big in fruitful events, as the former was for the time in dire calamity, dismay, and ruin. The same elemental causes have, I am inclined to think, produced both. The Classicists, like the Romans, have ceased to display the energy of intellect, which formerly rendered them supreme masters of the world's taste: and some say their *morals* are sadly corrupted. They must bestir themselves; they must think and act once more, if they would save their beloved style from the destroying hand of the—I will not say barbarian, but invader; and when they have effected a truce with the enemy, they must turn their attention to reform at home. I have the greatest hopes that much good will result from the strife; for if the combatants do not unite, I think it likely they will gain energy, self-reliance, and natural tastes and feelings on the one side; and on the other, polish, refinement, grace, and dignity.

* See page 688, *ante*.

The consideration of the claims of the rival styles, as set forth by their various supporters, together with the practical proof that is everywhere afforded of the successful application of what appears at first sight to be opposite principles; and also within the circle of my own practice, having employed the various styles accordingly as I thought they would meet the requirements of the case; and having convinced myself, that in one case one style may be used with advantage and propriety where another would fail, has led me to investigate the capabilities of each style, and I have arrived at the conclusion, that it is mainly the *sentiment* which the style expresses, that makes it suitable to the locality and purpose. Of course, there are other points to be considered which may modify the desirability of its employment—such as the materials at command, and the cost of the different descriptions of labour, but that is the principal deduction I have drawn; and the object of the present paper, is to string together a few thoughts relative to the sentiments which the leading styles in use are capable of expressing.

GREEK ART.

"Ah! Greece! they love thee least who owe thee most."—*Byron.*

Greek art possesses in an eminent degree abstract beauty: it is the offshoot of singularly exact minds, and is the most perfect realization of the ideal which has yet been given to the world. In it the proportions are exquisitely balanced, the lights and shades most delicately handled. The minutest details are pencilled in, and perfected with such a refined feeling for the beautiful, that it seems like the work of superior beings. Everywhere there is harmony, grace, and dignity. The very qualities to which it owes its perfection almost prohibit its use at the present day. It lacks so much pliability and naturalness, that it is almost impossible to preserve its beauties intact in applying it to modern purposes. We have ceased to think in the same strain as the ancient Greek, therefore we cannot design in the same style, without being liable to fall into the most imbecile copyism: but where we wish to express graceful dignity—dignity without presumption, and elegance without affectation—we should study the heaven-born examples left us by the Greek, seek to discover on what those qualities depend, and then embody them in our design.

The prevailing sentiment of the art of the Greeks is high intellectuality: their aim was to produce the abstract and the ideal in everything: their imagination was allowed but limited range, from the fastidiousness of their taste; but whatever beauties they produced they perfected with the utmost precision and exactness. They aspired to reach the central essence of beauty: the utmost perfection of external form, and the idealization of the generic nature of things; in a word, they aimed at being gods, not men. They never could descend to the portrayal of homely virtues or vices, or to the simple illustration of the great book of nature: everything, good or bad, must needs be tinged with ideal excellence. It was beneath their wisdom to see Nature as she is, they saw her only as she ought to appear according to their predilections. Their philosophy even aims at superhuman effort, for they would not, in their mechanism of life, allow for friction. In everything they sought excellence—all nature cried out aloud to them for excellence. Their sculpture was but the portrayal of abstract qualities—in the "Laocoon" lay the representation of intense pain; "Jupiter Olympus" was but the incarnation of godlike majesty; the "Hercules" that of the greatest physical strength; and "Venus" that of sensuous beauty. Characteristic distinction of species they in all cases exaggerated; marking it in the most decided manner. They sought with fervour abstract truths, but their wisdom at the present day would be considered impracticable. The tree sent out majestic branches and exuberant foliage, but of fruit there was none: other elements were required in the soil, in default of which the tree withered and died: it had lived its natural term of life, became exhausted, and could produce no more.

From the few characteristics of the art which I have attempted to point out, it will be understood that to try to introduce it again in its pristine purity would be a hopeless task. When the public first became acquainted with the style, they were enraptured and amazed: never had they seen anything so perfect, so harmonious, or so refined: such grace and dignity had not before been conceived by the most enthralled votary of art. Admiration led to imitation, and not only were the ancient forms reproduced, but they were placed in singularly inappropriate situations. Enthusiasm gave place to satiety, and then most people agreed, that however beautiful the style was, considered abstractedly, it did not comply with our modern wants. Continued repetition had become tiresome: Centaurs, Minervas, and Neptunes were very well in their way; beautiful when examined in connection with Greek mythology, or even as mere forms; but beyond that they were discovered to have no connection with our sympathies or ideas: very good in a museum, but of no meaning on a modern building. The public soon found out that we were copyists of the worst description, devoid of all original thought, and that is a failing above all others that they have the least sympathy with. Art was in truth becoming a dead letter. What would be thought if we imitated to minute mannerism the poetry of Homer, Milton, or even Pope? That would have been much more creditable, for we should even have had some new thoughts. I think I can only compare the copyism that then prevailed to the reprint of the works in another form! or a Bible with illustrations taken from the "Illiad." No more striking illustration can be pointed out of the evil of adopting a style without the introduction of new elements, than the mania for Greek architecture which prevailed some fifty years ago.

As the prevailing sentiment of Greek art is the ennoblement and enthronement of the intellect, expressing simple dignity, it is well fitted for halls of justice, representative chambers, and buildings appropriated to science. But in the application of the style we must not *imitate*; we must enter into the spirit of it—a difficult thing to do. If the artist-architect cannot strictly adhere to the style, and be original at the same time, he may yet sympathise with it so much as to imbue his work with similar sentiments, and thus ennoble and refine his conceptions, placing it nearly on a level with the ancient masterpieces. Italian and Roman architecture may in this manner be purged of much of their grossness, and their details corrected and dignified by the introduction of the Greek harmonic excellencies; it being a most improving style for study, if not for imitation.

The inappropriateness of certain styles, excepting for special purposes, may be forcibly shown by trying to conceive—a Grecian prison, or, still better, a Grecian workhouse! At one time Grecian lodges and park entrances were common; indeed, I now recollect one which has not been built ten years! a miniature copy of a temple, with rough plate-glass let into one or two of the metopes, to serve for windows, and, oh shade of Pericles! the chimney-stack crowned with slate tops of the *usual* pattern. Also I could mention an octastyle chapel, of the true Amphiprostylos type, with the compluvium, if it may be so called, filled up with a flat skylight through which the wind and rain play with melancholy and funereal coldness. Something certainly might be done exceedingly tasteful, in the way of villas and lodges, if designed in the proper spirit: not adhering too strictly to the style. We must conceive the outline of the general arrangement first; and then putting ourselves into the frame of mind we might suppose a Greek to be in, were he in our position, try and give expression of purpose to the roughly-conceived design; the details will then work themselves out consistently as a matter of course. The style will, however, harmonize better with flat or gently undulating scenery, than square rocky masses, and possesses such inflexibility, that it is very difficult to handle with freedom.

One of the ugliest features in our modern pseudo-classic dwellings, and which shows the imbecility and red-tapeism still clinging to us, is our treatment of chimney stacks—no, not shafts, for *they* are ignored. What might be made, if our architects would strike their fetters off, a source of beauty and picturesqueness, becomes transformed into the most villanously ugly appendage that the imagination could contrive, when under the influence of the nightmare. The modern Italian *improvisatoré*, when he handles the chimneys, *must* feel his weakness—he cannot make them rhyme: do what he will,—group them, raise them, lower them,—there they still stick out in *bold* contrast to the rest of the building, the very incarnation of ugliness: he gives up the attempt in despair, letting them jangle in as they best may: he probably crowns them with a cornice so heavy, that it is perfectly miraculous that the 4½-inch brickwork is not ground to brickdust. On this he must needs place his "mug," to prevent the wind gathered up by the top surface of the aforesaid cornice going down the flue in a gusty volume: the wind collected by the opposite surface of the roof still gets down the flue. Of course the peace and happiness of the inmates, together with their best furniture, are entirely destroyed; but what of that? They are like Finnon haddocks, accustomed to be smoked. Perhaps the unfortunates rebel, and are rash enough to send for a chimney-doctor: he pulls up the floor — he takes out the grate, and many other are the attempts he makes: perhaps with the help of a tube at the top, 10 feet or 12 feet high, and a fire-plate at the bottom; together with a large annual consumption of coals, it may be he succeeds. I feel I am departing from my subject, but I must go on, it is such an exciting topic. Am I to be told that with proper provision at first; with a flue of equal section all the way up, free from cavities or receptacles for cold air, and not of too large an area; with the shaft carried up well above all surrounding objects, and each shaft distinct, if grouped: am I to be told, with a rueful countenance, that the chimney-doctor will still be needed? Those of frequent failure will give an affirmative "Yes: for the laws by which chimneys smoke are as fickle as the elements, and the unruly household Lares require frequent coaxing." To such I can only answer, try the plan I have here propounded.

Another great defect in modern Classic dwellings—though not confined to them alone—is the attempt to keep the roof flatter than is necessary for protection from the wind and rain—for the due fulfilment of its purpose. Everything above the cornice appears to be considered an eyesore, and many are the schemes devised for keeping the roof and chimneys out of sight; all of which may be summed up in one word,—failure. Utility is sacrificed to false taste, for the essential feature of the building is wanting; or at least we can see that it is looked upon at the best as an ugly necessity.

It is such proceedings as these that have brought odium upon all connected with Classical architecture: one or two among many of the shams thought necessary to preserve purity and horizontality.

The outline of the design should be the *first* consideration, for it is the most obvious feature of the whole. A well-developed, firm, and meaning outline gives life to the mass, detaching it boldly from surrounding objects. What can be more unmeaningly ugly, or more humiliating, than the mis-shapen, unsightly heaps of bricks and mortar, under which the ground in our parks groans? Misnamed Italian architecture. A picturesque skyline is certainly not necessary in all situations, the reverse being the case in many instances; for the tendency of picturesqueness is in opposition to that of Classicality. All I contend for is truth of purpose (a question we will discuss in another place). The Greeks would certainly not have acted as many of us have done: they would have adapted their art to modern wants, preserving its ruling æsthetic principles intact, viz. symmetry of parts, simplicity of plan, breadth of effect, and refinement of detail. It is this that gives majesty, grace, and matchless beauty to all the productions of their ardent and well-balanced minds: which has helped them to excel all others, and give to the world the most perfect style extant. But it is hoping against hope to expect good architecture when art is a mercenary trade, and the soulless speculative builder usurps the place of the architect: when everything is looked on with mere utilitarian eyes, and the proprietor cannot distinguish between moderately good and villanously bad, but is willing to pay the same price for both.

I am afraid I have said more than the limited applicability of the style will warrant; but many of the remarks are equally applicable to all styles. I would wish my hearers, before finishing the first part of my paper, to bear in mind that it is the sentiment of the style which fits it for the expression of purpose. The style chosen must harmonize with the site. A Grecian house in a Gothic garden, or *vice versâ*, would offend all tastes. The ground about a Classic dwelling must be arranged with a certain formality and an attention to the principles previously enunciated. I am aware that many will not give to Greek architecture even the limited range which I have assigned to it; but to my mind, nothing can be more characteristic and appropriate to a man of refinement and learning, and nothing so congenial to his tastes, as the residence in a suburban villa designed on truly Greek principles.

Aristides.—Now, gentlemen, what do you think of the first instalment of the subject?

Rufskinius.—I think that you have done a great deal more than justice to it. To my taste nothing can be more insipid, nothing so tiresome, wearying, or monotonous, as Greek art. The regularity and method so suitable to you is to me in the last degree oppressive. The constructive principle is bad, and the whole utterly false and untrue to nature.

Aristides.—I will not build *you* a house in that style. I would suit the character of the house to that of the mind; the garniture of the design should express the tastes of the owner. *You* should have a more imaginative residence, a more picturesque, quaint abode, with a spice of solemnity about it, but withal showing a playful effect of light and shade, entirely unartificial, without one particle of formality in the whole composition.

Donaldo.—You understand well how to apply the medicine of the mind: there are many who would grunt and growl over their miserable fate in being compelled to live in an untasteful age, were their clients to object to their pet style: such is the effect of bigotry.

Aristides.—Under such circumstances it is impossible that they could produce a good work; their soul's

rebel against it. Far better would it be if the gentlemen in question would acquire a little pliability of disposition, and adapt themselves more to the humours of their clients. Every man has a right to a little forbearance, considering how tastes differ, and the likelihood of his not being much wrong either, as I have been attempting to prove. Instead of setting up their backs and showing their bristles like hedgehogs, would it not be better for them to try and discover the inward sympathies of their clients, and give suitable expression to them? They should conceive for the proprietor, but finish for the artist. With your permission, gentlemen, if you are not already weary of the subject, I will proceed.

ROMAN ARCHITECTURE.

Roman architecture is as correct an exponent of the feelings and moving passions of that nation as that of the Greeks is of theirs. Pomp, magnificence, grandeur, luxury, display, characterised all their tastes. All that could ennoble the warlike and energetic race was called in to give its aid in perpetuating the victories gained by them. Worshipping military glory—everything gave place to that ruling passion. Science was cultivated to advance the art of war; to make roads, to construct machines, to throw bridges over rivers; or, on more peaceful occasions, to balance aloft ponderous vaults and domes, under which the gods were propitiated, or the glorious achievements of the empire consecrated. As the taste for luxury and ease advanced with conquest, then were the splendid baths, the mighty aqueducts, the colossal amphitheatres, and magnificent palaces erected. Now was the summit of their greatness reached: slowly the enervating nature of their amusements and habits sapped the foundations of their already overgrown dominions, and in their fall the civilization of centuries became a thing of the past.

With much that is splendid, superb, and vigorous in their architecture, there is mixed a leaven of folly, extravagance, and vulgarity. Lacking the chaste refinement of the Greek, they yet partly compensated for it by greater versatility of talent and their superior attainments in science, thus enlarging the scope of their art. The invention of the arch introduced a lever in the system which the Greeks never possessed, or never appreciated. It is a feature giving power and elegance to their architecture, and placing at the disposal of the artist and man of science increased resources, facilitating those engineering operations which the Romans delighted in,—emboldening the architect in his conceptions, and affording a never-failing resource in structural difficulties.

The vast scale of the Roman works throw the Greek productions into the shade: it is as a giant compared to a pigmy. The grandeur only attainable by size being denied the Greeks, they did all that mortals could do with their limited means, producing, in a very small edifice, a degree of the sublime far excelling that displayed in a Roman work of the same size. The employment of the arch principle led, by sure steps, to the adoption of the vault and dome, and the solidity, science, and skill displayed in Roman work, have never been excelled. The symmetry of interior effect gained by Roman vaulting is worthy of all praise, and from which our engineers, with their boasted skill, may yet gain much knowledge in architectural statics. With geometrical symmetry, which our own Wren carried to such perfection, they combined sound construction, very different to the thought and money sparing labour of the present day—the works of engineers who have no knowledge, architects who have no taste, and contractors who have no souls. Geometric harmony is a study so much neglected, that I cannot do better than recommend its more frequent introduction in our own works: it is this that unites in elegant combination the various parts of a design, giving due proportions and balance to each; showing at a glance that it is the work of a man of knowledge, accuracy, and science—not that of a presumptuous bungler; a completed idea—not an undigested mass of crudities, faulty in construction, and clumsy in design. Modern engineers, certainly, have done wonders in their way, but they are yet only in the second stage of their art: requiring the perfecting mastery of exact calculation and structural elegance, to render their works complete: in elegance let them take a lesson from the Romans.

The capabilities of the style are much more varied than the Greek: and having many points of resemblance to the Romans in our wants and tastes, though there are striking characteristic differences, it is much more suited to our requirements. For public buildings and civic institutions it is eminently adapted: for domestic purposes Italian is better, which is after all but a modification of the Roman.

The sentiments displayed most prominently in Roman architecture are power and grandeur: sentiments very appropriate for the expression of the wealth and intelligence of an enterprising commercial country. It also possesses an enlarged scope for invention, and for the display of artistic embellishment of an original kind. Notwithstanding, it is essentially an artificial style, more in consonance with the occupations of cities than with natural or rural scenery. When employed it should be on a large scale, for it has not the innate sublimity of the Greek, and on the other hand will not bear breaking up into small masses; a measure necessary for the picturesque. All good Roman work must aim at richness without exuberance, and grandeur without pretentiousness: while we emulate their magnificence, we must be discriminate in selection, rejecting all meretricious ornament and adventitious aid. Avoiding baldness, we must still not cover every inch of surface with enrichment, destroying one of the highest qualities in art, viz.—breadth of effect. That symmetrical arrangement of parts and counterparts demanded in Grecian architecture, need not in Roman be so strictly adhered to: it is not essentially necessary that the two ends of an edifice should be alike, or that both sides should be similar, or that the plan should be a regular parallelogram, or a complete circle, or indeed of any simple geometric figure: still there should be a certain degree of symmetrical harmony governing the whole. The several masses of the composition should be grouped in reference to a large and central feature, with an eye to a bold and pleasing play of light and shade; they should be proportionate, not interfering with each other, but helping the general effect. Due emphasis should be laid on the main horizontal divisions of the design, which should again be judiciously embellished and enlivened with suitable conventional ornament and spirited mouldings. The laws of composition require that all the parts unite in giving oneness of purpose to the structure; it being quite incorrect to arrange it so that it may be divided in two, each complete in itself. Still more tasteless is it to jumble together a mass of materials, good perhaps in themselves, but having no common connection or homogeneity of meaning. It is necessary for the dignity of an edifice of any importance, that it be placed on a commanding stylobate, that it have a bold base and massive cornice, and, in some cases, a crowning parapet. The pyramidal principle (so strongly insisted upon by Bartholomew) must never be neglected where we wish to give elegance of contour to our work; and, in conclusion, I would point out to students in the art that it is of the utmost importance they should aim at finish in all classic work, and would guard them against being led away by the sketchy picturesqueness prevalent in the designs of many of our young rising architects.

Archimedes.—Allow me to say that you have made a most unwarranted attack upon engineers in general. The worst which can be said of them is that they consider "utility" to be the primary object of their profession, and I am willing to brave being set down by "men of taste," when I say that they are correct in considering it to be so. I should like to know in what position the world would have been now if it had been left to the guidance of the so-called "men of taste?" Why we should have been driving to London on stage-coaches, because, forsooth, they are more picturesque; or, perhaps, sending our troops to India in Dutch galliots by reason of their not being so formally constructed as our present clippers,—and look better in a sea piece!

Aristides.—I am extremely sorry if from the tone of my remarks they can be construed into such a meaning as you have chosen to put on them. I did not say "utility" must not be considered the primary object of all engineering; indeed, it is so of all the *useful* arts, as the name implies; but I must insist upon their not totally ignoring the existence of other beauties besides that of utility. My intention was to point out where they might improve their vast conceptions; and I still adhere to the notion, however absurd, that the study of architectonic proportion would enlighten their too matter-of-fact minds, and render their productions more compact and beautiful. No one can deny that it would be an advantage to the public sight and pocket, if those clumsy appendages of useless piers, enormous caps, ugly mouldings, and unmeaning columns and entablatures, attached to, but not having the slightest connection with, the bridges they disfigure, were displaced to make room for more meaning and appropriate embellishment. Though utility is the primary object of such works, beauty is an important secondary one, and perfection cannot be obtained without the study of it.

Garblentum.—Engineers *are* a soulless race; and however I may disagree with you on the point of *styles*, I most cordially re-echo the sentiments you have just expressed.

Rufskinius.—Your "sentiments" regarding Roman art are as wide of the truth as your previous praise of Grecian is sickening. In some respects they may have displayed more science than the Greek; but for constructive *truth* they had no feeling. Crazy architraves, backed up by arches to assist them to carry their own weight, are abhorrent in principle; and in this species of structure the Romans *were* adepts. Their taste in ornament was even more faulty and licentious; and they did not embody in any part of their architecture that honesty of intention so characteristic of Englishmen; therefore, according to your own showing, it is unfit for our use.

Aristides.—Pardon me: the cry for plain unvarnished reality, in material and construction, proceeds from very much the same cause as the "correctness" of style demanded by our ancient tutors. Both are no doubt very good to a certain extent; but push them beyond their legitimate limits, and they end in disgusting affectation. The absurdities and follies which art critics of the present day have been attempting to thrust down the public throat are unendurable. The mistakes and inconsistencies they fall into are the result of undue appreciation of some one principle, which blinds them to all others. No man in his senses would attempt to practically carry out the principle of truthfulness to the extent demanded by them,—they would not themselves! It has become much too common to write fine things for the sake of writing them—it never being intended that they should be reduced to practice. To carry the principle of truthfulness to the extent fashion demands, would lead to the condemnation of *all* structural concealment. Is it consistent to object to support from concealed arches ties, or beams in the case of architraves, and in the same breath allow chains to be buried in cupolas to counteract their thrust? If we examine nature (another thing we are requested to do), we see that in the majority of instances structure is concealed—in some indicated, but in none brought out so prominently before the eye as the too scrupulously conscientious truth worshippers wish us to believe is necessary in good architecture. Another fashion lately in vogue, teaches us that good architecture can be produced on utilitarian principles only, without attention to æsthetics. A roof must only (by this theory) be inclined so much as will best fit it for carrying off the water falling upon it; and no attention need be paid to the functions it fulfils in carrying out the general outline of the building; this would prohibit most Gothic roofs and all slated turrets. On the same principle, it is unessential to give an arch a greater height than will enable it to support the weight piled above it; or it is equally unnecessary to form a window narrower than can be conveniently executed with due attention to stability; or a door higher than will admit a tall man, or wider than will allow two ladies to pass, in full crinoline dress. A hundred more "cases in point" may be cited to which the principle will logically lead if carried out to its full extent; and I would ask, what will become of the much-vaunted Gothic, if measured only by the principles laid down by its own over-ardent admirers? The merest tyro, who has but once attempted a Gothic church, will see the fallacy of such reasonings as these, if he be not blindly intent upon supporting the "good cause" at any price. Truthfulness assuredly is characteristic of Gothic structure; but mere utilitarianism is not; for there is an æsthetic law that must be fulfilled even at the expense of convenience, and that is the law of verticality; for demanding that the leading lines of the edifice should be vertical; prohibits width in the windows, flatness in the roof, and lowness in the arch. In all great works, not alone in the Gothic, but equally in other styles, some sacrifice must be offered up to the æsthetic principle. St. Paul's possesses an outline of unrivalled nobility and elegance; but that effect has been obtained by carrying the outer dome up far above the inner one, leaving a void between of no utility whatever. It has, however, been well observed by Mr. Allom, that this arrangement was called for to give effect both to the interior and exterior; consequently, the one has been made proportionate, the other noble and commanding. Who will deny that this is not at variance with utilitarian doctrines? The crowning point of such philosophy has been surmounted by Mr. Fergusson, who half condemns Gothic vaulting for not effecting two purposes—serving for both a ceiling and a roof: to such extremely ridiculous results does any doctrine lead, when pushed beyond its legitimate limits.

Rufskinius.—I cannot agree with you on any one point: if architecture transgresses in truthfulness, as you have represented it to do in many cases, it is not Gothic, it is a bastard style, and I totally condemn it.

Garblentum.—I also must take exception to your remarks, especially with regard to Gothic windows, which I boldly affirm are not the least bit narrower than the strictest utilitarian could desire, if he gave stability the consideration it merits. Are they not more consistent than the great gaping openings in modern buildings, miscalled windows, through which an army might be marched with ease?—and is not a Gothic arch far more scientifically structural than the cramped and crazy architraves which disgrace our modern pseudo-Classic porticoes; a shabby artifice, repugnant to all correct feeling.

Aristides.—Then what do you think of the Pompeiians using wooden beams for architraves over their arcostyle colonnades? I think that we have no necessity to resort to such an expedient now, for the same purpose may be effected in a much better manner with iron.

Rufskinius.—All such shams are beneath contempt.

Aristides.—Our opinions on art are so widely divergent that I fear I shall only bore you by proceeding with my paper.

Garblentum.—Oh, dear no! You will presently be getting to the most interesting part of your paper: we wish to hear what you have to say on Gothic architecture.

Aristides.—That is my next subject, so I will proceed.

GOTHIC ARCHITECTURE.

There cannot be expressed two more opposite sentiments than are embodied in the rival styles of the day—Gothic and Classic: whereas the last depends for its effect on our feelings for artificial perfection, without any direct imitation of nature, but rather uniformity and conventional treatment: the latter is, in its inherent excellences, dependent on, and an exponent of, the principles which regulate natural beauty. It is the unpretentious poetic offspring of unsophisticated nature, disrobed of all artificiality and affected refinement; the homely soul of man laid bare; The genuine effusion of the spirit which sees this great and glorious outer world in a loving, trusting, hopeful, mysterious, and imaginative mood. Such an architecture must be peculiarly suited for Christian and ecclesiastical purposes; for all is open, all is true—nought glossed over for mere showy effect or flimsy tawdriness. It has not been inaptly termed, by some who feel the full force of these qualities, Christian architecture; but there are those that have no sympathy with the style—that do not understand it, and never will—and are, consequently, disposed to cavil at the interpretation, and call such views orthodoxical. He who has felt the solemn soul-inspiring effect of the interior of a Gothic cathedral; who has felt grave, humble, subdued, and awe-stricken, in the presence of the spirit of our good and true ancestors; who has communed with the dead of bygone ages in the gloomy shade of mediæval-vaulted canopies—*he* will not be disposed to question the fitness of the style for religious purposes, or its power of raising our minds above worldly desires and earthly vanities; freeing us for the time from the subjection of those cares which lie cankering in our hearts, bringing with them only desolation and trouble. Show us that this peculiar power exists in Classic architecture, and that it is as capable of exciting emotions as pure and lovely as these; then we shall be at liberty to ridicule the term Christian art, and employ in preference the Classic style with all its so-called superior conveniences and modern appliances.

Not only is the Gothic peculiarly suited for religious sympathies, but it is a style that harmonises admirably with natural scenery. The unaffected irregularity of outline and varied disposition of masses allowable in a composition in this style,—arising from a natural and conformal arrangement of the several parts, to their respective purposes and objects, in strong contrast to the opposite course, which must be adopted in the treatment of all Classic styles, and the duplication of members to preserve symmetry, renders it singularly in keeping with the works of nature, affording relief to a mind harassed and annoyed with the vexatious realities and formal ceremonies of this artificial modern life. It is here, surrounded by works of Gothic art, giving zest to nature's charms, that the weary mind, in quest of quiet enjoyment, will find true repose. Grecian art may suit the active intellectual mind; Roman, the energetic mind, and sumptuous luxury of the man of wealth; but for the mind of nature's true poetic cast, which feels a joyous buoyancy in communing with the varied beauties of the picturesque, Gothic art is a sympathetic link with the outer world. No other art is so pliant, so versatile, and so imaginative, or so true: its sentiment is poetry, and its principle truth. Let not the soulless criticisms of "practical men" drive from the heart of the enthusiastic lover of the natural, all belief in the living healthy vitality of the style, by the hackneyed assertion that it is inapplicable to the present wants of society. Such opinions are only held by those who are incapable of reading the spirit of the style, and re-adapting it to the demands of modern civilization.

Just as the Classic styles may with propriety be termed the grand and epic in art, so may the Gothic with quite as much propriety be called the simply poetical. There exists the same distinction of character between the poems and literature of antiquity and the literature of life, feelings, and sentiments in vogue at the present time, as there does between Classic and Gothic art; and it will be as vain to attempt to warp the tastes which individuals manifest in favour of one or the other of these styles, as it would be to divert the course of the great ocean currents. There are scarcely two feelings common to both styles; and while minds continue to be constituted so differently, and organisations are so various, it is the height of absurdity to attempt to unite the antipodes in taste. A purely demonstrative proposimay be proved to all by force of analysis, but art is dependent upon the inward feeling of beauty: it is a sentiment, not a mathematical problem. What is the value of art—of what good is it? say thousands of people: a question difficult to answer when those who ask can never ascend to an appreciation of anything beyond material comfort. Of what use is music, say those who have no ear for it? and to such as they it is of no use, and never can be. It is the same with the advocates of one or other of the styles, which their organization and early training fits them best for appreciating; they cannot see beauty in any other—their ears have become so accustomed to listen to one tune that all other airs are thrown away upon them. Argument in such a case is a waste of words; if one man likes pork and another prefers beef, no amount of reasoning will convince either of them that his favourite dish is not the best. It is the same in art: all deductions are superflous when we cannot agree upon the premises.

If it be said that, notwithstanding all this, I do appreciate the various styles for the time, purposes, and plans, for which they were at first employed—but only such a one is now applicable—I answer that our age is retrospective as well as progressive; while we borrow ideas from the past, we introduce new elements for the future. No style in its integrity is applicable, because in none do the same circumstances exist. We must mould, bend, re-shape, and re-arrange the materials we have at hand, and in doing so new phases of style will develope themselves in every respect applicable. We may talk, write, dispute, and revile each other, and still the whole circle of the styles will be practical; better to turn our attention to finding out the peculiar fitness of each than waste our breath in disputations about the propriety of employing one.

There has been another fallacy walking abroad of late. Those who have fallen into the difficulty of not knowing which to chose from among the rival claimants have attempted, in a very loose and unstable manner, to prop up a theory which would teach us to pay no attention to any style. Such a course can only be followed in imagination; to attempt to reduce it to practice, would be a herculean task, and would result in a most unmeaning assemblage of borrowed ideas. It could only be paralleled by attempting to build a pyramid from the apex, or a house without a foundation. The process by which we evolve new forms is too laborious and long to admit of being gone through in the short space of time allotted for the production of one design, or even of many. So much depends upon fortuitous suggestions and fleeting conceptions, that at the utmost we can only hope to effect variations on some style taken as a *basis*—not to produce a new one. If it were not so, we might invent a new style in every design we made; a result so impossible, that every one will see the absurdity of it. Even supposing a genius great enough arose, and invented one entirely new, of what advantage would it be? All the smaller fry would have in a measure to copy him; where, then, would exist the greater originality? On the other hand, if no style is taken as a basis, we produce a mere jumble—an unfortuitous concourse of atoms.

One of the great difficulties urged by anti-Gothicists in the way of the employment of Gothic for domestic purposes, is the unmanageableness of the window-openings. They say, with truth, that broad spaces of plate glass are inadmissible, from the necessity of employing mullions for the subdivision of the opening. This some of the ultra-Gothicists flatly deny; but with very little show of reason. The mullion is as essential to the preservation of Gothic character, as the architrave, frieze, and cornice are to that of the Classic. The perpendicularity of the style demands that the leading features should be elongated vertically, both with respect to voids and solids; in the window it is the void that leads the eye. There is also the difficulty of another principle to contend with, which it is essential to keep in view when designing in Gothic. I mean the opposite one to that expressed by the term *breadth*, and which requires that the most striking features should be subdivided—in some cases diapered, and that no broad surfaces, not even in the stones, taken separately, should be allowed. In this, as in most other instances, the two styles are in exact opposition; for the larger the surfaces of the stones in a Classic structure, provided they are not disproportionate to the thickness of the wall, or deep enough to destroy the horizontality, the better the effect. Plain surface must be very sparingly introduced in Gothic work; whereas, in Classic, it is essential for repose. If there happens to be a large extent of unpierced wall space in a Gothic design, it should be erected principally with rough, irregular stone, or else it must have introduced in it scutcheons, niches, or other conventual ornaments belonging to the style. I do not wish it to be understood that I consider solidity of piers and walls contrary to the spirit of the style; the reverse, rather, is my opinion, for a certain degree of solidity is absolutely requisite for the repose of the structure; but it is the repose due to quantity, a very different quality to the Classic breadth before alluded to. I know that the Tudor will be cited against me, showing that it is of little consequence whether the stones are laid smooth and regular, or irregular, provided the design is a good one; but I would beg leave to suggest that Tudor can hardly, strictly speaking, be called Gothic, so much formality and carpenters' work having crept into it as to destroy, in a measure, the spirit of the style; and in that case it only expresses what may be said much better in another style.

There have been many attempts to get over the difficulty of introducing sashes and preserving the mullions, and nearly all have failed. Mr. Bartholomew gives an example of how the same may be done, but it ie simply barbarous. Why casements should be so much objected to I am unable to account for. If they can be constructed to keep out the wet—and that they can be admits of no doubt—why should they not be used? Presuming that the object of having windows to open is to admit air, when it is required for coolness or ventilation, it cannot be disputed but that a system of casements is equal to that requirement. Of course, if furniture is to be pulled through the window, all our arguments fall to the ground; but in a gentleman's house that is unnecessary! There is another much-talked-of disadvantage arising from the employment of mullions, and that is, that it cuts up the prospect; but this is more imaginary than real. The question hinges on this: do we prefer calm or ostentation? If the latter, by no means adopt Gothic; if the former, Gothic by all means; for the separation and division of the prospect by the mullions allows of a quiet contemplation of it in parts: if we would see the whole, we can approach nearer. To be in the centre of a room opposite an immense window is like living out of doors, and in winter is excessively cheerless. If the same window be divided in the Gothic fashion, we, on the contrary, feel as if in a house—in fact, at home. There are no doubt advantages and disadvantages in both; all we can do is to choose as our tastes prompt us. Be not afraid of being called a man of no taste; that is a bugbear especially reserved for the ignorant.

Of what then shall we say Gothic architecture is capable? Is it to command applause, to inspire us with a supreme admiration of our fancied greatness, or to lead us to worship the intellect of man? No! but to draw us imperceptibly to acknowledge the greatness and goodness of the God of nature; to lead us to sympathize with the true and unaffected beauties and infinite variety of effects which are constantly surrounding us, enlarging the range of our knowledge, and sharpening our appetite for the natural: not being given for us to look upon as so many useless baubles; but for elevating our aspirations and enlightening our views, to promote our enjoyments and purify our hearts. I must pause awhile.

ON SCIENTIFIC INSTITUTIONS,

IN CONNECTION WITH THE DEPARTMENT OF SCIENCE AND ART.

THIS was the subject taken by Dr. Lyon Playfair, C.B., for the third of the series of lectures now in course of delivery in the theatre of the Brompton Museum, and was read by him on Monday evening, the 30th ult. The theatre was full to overflowing, and this was the case, we may mention, on the previous occasions. In the neighbourhood, especially, the lectures are regarded with great interest, and the hope is pretty loudly expressed that others will follow those already announced.

The lecturer first considered the institutions established in the capitals of the three kingdoms, and then the schools in the provinces. Foreign countries, he said, had, many years since, perceived that it was necessary, for the popular apprehension of the connection of the sciences with the industrial arts, to have supplemental museums, connecting the abstract sciences with their applications to the usual industries of the country. It was in 1835 that the necessity for such museums in England was formally brought before Government by a man of rare intelligence and singular perseverance, the late Sir Henry de la Beche. This eminent geologist was then in charge of the geological survey, which, following in the footsteps of the trigonometrical survey, lays down upon maps the geological and mineral features of the various districts. Sir Henry, in his memorial to the then Chancellor of the Exchequer (Lord Monteagle), suggested that a collection should be formed "containing specimens of the various mineral substances used for roads, in constructing public works or build-

ings, employed for useful purposes, or from which useful metals were extracted, and that it should be arranged with every reference to instruction," as by the adoption of this course "a large amount of information which was scattered might be condensed, and those interested enabled to judge how far our known mineral wealth might be rendered available for any undertaking they are required to direct, or may be anxious to promote for the good or ornament of their country."

The collections thus indicated, having commenced in 1835, had assumed such form in 1837, that the Government gave some rooms in Craig's-court, Charing-cross, for their reception, where they accumulated so rapidly, that first one house and then two houses became full, and finally, growing in importance and extent much beyond the capacity of the Government houses in Craig's-court, the handsome structure in Jermyn-street, now known as the Museum of Practical Geology and Government School of Mines, was erected. The Mining School was described; the Royal Dublin Society, and other establishments; and he then traced the establishment of the Special Schools of Science, in connection with this Department, which now exist in London, Poplar, Bristol, Birmingham, Leeds, Truro, Stoke-upon-Trent, Wigan, and Aberdeen, some, in fact all, successful as to the disposition of the working-classes to support them; but even those most numerously attended and increasing in numbers running the risk of abandonment at any time, because, with one or two exceptions, the expenses are greater than the receipts.

The desire of the artisan for a secondary education is not new. He has for the last quarter of a century laboured to attain it through the agency of institutions devoted to his own class, but has failed. Let us pause to reflect upon the reasons why he wants it, and why he has not succeeded in supplying his want.

In recent years, the most meritorious efforts have been made by the public, with the co-operation of the State, to establish primary schools; but it has been too much the practice to consider these as sufficient for the education of the people. The public have laboured zealously to bring together the materials out of which an educational edifice may in future be constructed, and have well laid some of the stones which are to constitute its foundation. Milton describes a complete and liberal education to be that "which fits a man to perform justly, skilfully, and magnanimously all the offices, private and public, both of peace and war." Whether the primary schools of any country, and particularly of this country, are calculated to answer the objects thus demanded of education, will be seen by a little consideration.

The lecture system, he thought, had failed, and so what had been called Working Men's Colleges had been formed.

The first requirement in the education of the working man is to give him his positiron as an intellectual being, by enabling him to understand what he is doing, that is, to explain to him the natural laws upon which his labour depends. It is not sufficient that he should be enabled to fulfil his duty: his dignity as a man requires that he should be enabled to fulfil that duty with understanding and intelligence. If public education be aimed at the first point only, all it does is to fix a handle to a tool, or a framework to a machine: the second aim ensures that the machine is the most perfect of its kind, adapted to fulfil all that is required of it. You will understand, then, that while I do not undervalue one branch of knowledge professed at these Working Men's Colleges, I think they miss the primary means of elevating the working man, because they do not concentrate their energies on a few branches of knowledge bearing on his daily life. The most successful school for working men has probably been the School of Arts in Edinburgh, founded by Mr. Leonard Horner: at all events, it can boast of a larger number of pupils, and a duration of existence not possessed by any other secondary school for artisans. Its success has been mainly owing to the few subjects which it professes,—these being confined originally to mathematical science, chemistry, and natural philosophy; although, at the request of the pupils who found that they were deficient in elementary knowledge, English, French, and drawing have since been added. The administrative duties of its council (which, I should mention, consists only of gentlemen and master-mechanics, not workmen) are within control. its teachers are qualified and paid, and the students have within a limited area a choice of the sciences embraced in the manufactures of their city. I have now, perhaps, said sufficient to show wherein I think the cause of failure lay, when the lecture system of the institutions gave way to a school system, founded, however, not on the limited design of a school, but on the wide comprehensiveness of a university.

The next fundamental difficulty is the want of appreciation on the part of artisans, as a body, for instruction in the science of their occupations. No doubt this exists largely, but still not to an extent so universal as is supposed; for in the schools of this department we find men willing enough to take advantage of them, when we are able to found them on such terms of admission as working men might fairly be expected to pay. The removal to this obstacle rests mainly with the state, for its present existence is perhaps due to the fact that little or no taste for natural knowledge is given in our primary schools, supported so largely by state endowments. If some of the verbalism of schools were made to yield to the acquirement of scientific truths—if words were to give way to ideas—then the taste for science would be imbued into the boy, and a demand for its further gratification would arise when he became a man. Our primary schools have a large task assigned to them in the few years which the child of the working man devotes to instruction. The introduction of science, as a special branch of education, would, therefore, be attended with great difficulties. But it would be an easy thing for an apt teacher to gather round his lessons in geography much that is most attractive in the study of nature, instead of cramming the children with the names of tributaries of rivers, and of mountains, which he is not likely to hear of again after leaving the school. Geography, thus taught, with a thorough discipline in the theory, as well as in the practice, of arithmetic—that foundation of a working man's industrial science—would soon show their results in the increased demand for further learning, when the boy became a man.

The last and greatest difficulty of all to the establishment of secondary schools, in connection with Mechanics' Institutions, consists in want of adequate means: first, adequately qualified teachers; and, secondly, adequate remuneration for their services. I have already pointed out that the fees of secondary Schools of Science cannot support them to the extent which they do Schools of Art, because in the latter there is a mixture of rich and poor pupils: in the former, there are poor only. According to the present action and means placed at the disposal of the Department, we have little power to give efficient aid. Before, however, discussing how that aid might best and most economically be given, we are met at the outset with a doubt on the minds of many, even of men of liberal intelligence, as to whether aid should be given at all to such schools, either by the state or by the private efforts of the more wealthy in the several localities. The general argument, as presented to me, is as follows:—This country has attained a high degree of industrial prosperity, in spite of the failure of the Mechanics' Institutions and the paucity of Scientific Schools. Our Watts, Arkwrights, and Stephensons are men who have risen from low degree without the aid of such schools. Our manufacturers, as a body, do not call loudly for them. They are men of money, can pay for science, and import it when they want it; and these men of money are the payers of wages to the men of sinew, and don't let us lag behind in industrial enterprise, so that our imports and exports annually increase. Though, after all, one could dismiss such a style of reasoning, as being a negation to the necessity of progress, still its prevalence demands attention. To say that because a thing is well done, therefore means cannot be found to do it better, is to mean that God's light is to be extinguished by man's darkness. Though the Roman could write well with a style, the Englishman may be allowed to write better and faster with a quill.

In this mode of opposing scientific instruction, perhaps the most common and fallacious argument is that which points to Watts and Stephensons as reasons against scientific instruction. Call such men as witnesses: hear the struggles of their life to overcome the deficiency of early education; their toilsome ascent in steps cut out one by one in the mountain of knowledge; and I renounce my place as an advocate, and leave the case in your hands to be decided by their evidence alone. Hear such a man as my friend and old class-mate, Dr. Livingstone, the renowned African traveller, who educated himself partly by resting his book on his spinning-jenny, and snatching sentence after sentence as he passed at work; but also by taking advantage of the facilities for scientific education in Glasgow, which enabled the brave-hearted young man to acquire a knowledge of science with the small sums saved in the day from his earnings as a cotton-spinner. I class among my oldest and most valued friends men now in the same social position as myself, but whom I have known as cotton-spinners, weavers, carpenters, and blacksmiths. Some of these men are in Scotland, and have arisen to eminence through the facilities for scientific education presented there. One or two are in England, and have learned science for themselves, and well too, without any schools to which they could have gone had they wished it. All of them, without exception, are ardent promoters of scientific instruction among the less successful class of working men. The mistake of the argument is very obvious. All the dwellers of a plain do not surmount the mountain which frowns upon them at the end of their valley. A few daring spirits have reached its summit, and passed beyond it, but the great mass of the people remain in the low-lands. It has been well said that we are not called upon to legislate for men of genius,—nature takes care of them,—but for men of mediocrity, who require aid to pass obstacles. The bold and daring man may leap from rock to rock in a foaming stream and reach the opposite shore in safety, while a man of less power and nerve would have been dashed against those very rocks which gave to the first a footing. The only way to secure a safe passage for the mass of people standing on the brink of the stream is to bridge it over, so that all may travel with little effort. The case should not be argued by placing natural talent in antagonism to education. Education does not profess to give the gifts of God, by creating abilities in man, but merely to draw such out as are inherent within him, so that he may be enabled to apply them to his comfort and happiness in life. Schools are arenas for mental training, places for mental gymnastics, where, by systematic effort and exercise, the feeble man may become strong.

There is still one large class of objectors who exert great influence in preventing science from being introduced into the framework of our educational systems. They contend, that however useful science may be in promoting the utilities of life, it is neither calculated to discipline the mind (that is to strengthen common sense), nor to enlarge and ennoble the faculties. Such men as my friend Professor Huxley has pointed out, err by scanning science as a piece of mechanism, and not reading it as a poem: they are unable to rise to the generalities of philosophy, and view it therefore as a collection of dry realities, or hard facts unknit together by a common system. Perhaps this feeling has been strengthened by the observation, that science is sometimes taught as a mere accumulation of facts. The teachers are to blame; but in all professions there may be persons without either æsthetical or philosophical capacity. Although there are men who only see pure carbonate of lime in a statue by Phidias; who cannot see a forest because of its trees, or a town because of its houses, or a stately edifice because of its bricks,—yet it is unfair to take their view of science as a just reason for denying its power in educational development. It is no doubt true that science gives an exactness to both thought and action which differ materially from the mode of cultivating the faculties through the graces of polite literature. We feel shocked with its prosaic character when it tells us that diamonds are mere lumps of coal, and refuses to admit, although it admires, the fancy of the poet when he looks upon them as angel's tears congealed as they fell on the cold and sinful world, or as drops of dew distilled from the sparkling stars. But, while science demands truthfulness as the essence of his existence, his philosophy rises also into glorious conceptions of creative wisdom. In coal the philosopher sees, stored up for the use of man, the heat and light of the sun when it shone in ages which have long since rolled away: for when the sun shone upon the primeval forests, now entombed as coal, its heat and light passed into chemical affinity, which enabled the plants to extract their solid matters from the transparent aid around them. In the combustion of the coal the chemical affinity passes again into heat and light, so that actually, and not metaphorically, we warm and light ourselves by those solar emanations which gladdened the world some millions of years since; and, in the act of doing so, we throw back into the air the carbonic acid upon which former races of plants lived, and thus give food to the increased vegetation required by an advancing civilization. What a wonderful and bountiful benevolence is thus shown! Would not the knowledge of these beneficent provisions for the well-being of the human race cast a new light upon the gloomy passages in which the miner works when he excavates coal for our use? It would ennoble his work and elevate his mind to feel that he was an agent to an infinitely wise benevolence, which was providing for the well-being of the whole world. Surely the labourer would then sympathize with the feelings of Hugh Miller, the working stonemason, when he began to understand the meaning of St. Paul, that we are "labourers together with God."

You will find the necessity for promoting and diffusing scientific knowledge treated in an admirable chapter, by Buckle, in his recent work on the "Progress of Civilization in England." He shows that, as man's moral nature remains the same in all ages, and as no new discoveries in morality take place, the changes in a civilized people must be dependent upon their relative intellectual condition, and must, therefore, result from—1st. The amount of knowledge possessed by their ablest men; 2ndly. On the direction which that knowledge takes, that is to say, the sort of subjects to which it refers; and, 3rdly, and above all, on the extent to which that knowledge is diffused, and the freedom with which it pervades all classes of society. All this is very clear, and worthy of full thought. The practical character of a country must obviously depend not only on the amassing of

knowledge by its philosophers, but also upon its diffusion among the people. It is not a knowledge merely of natural laws which make a people wealthy; it is the power of applying them to the every-day purposes of life that produces riches. Philosophers very rightly remain with their abstractions, as a fountain remains at its source, or trickles away from its fulness in a narrow stream. If you wish to make that fountain useful to the surrounding country, you construct a reservoir for its waters, and channels by which to conduct them to the fields requiring irrigation.

Throwing open the civil service of the Crown to competition is an illustration, he thought, of what the public desire as aids to their education. If all the public offices in the State, except the staff ones, were thrown open to competitive examination, an undoubtedly great influence on the education of the country would be exerted. But whether that influence would ultimately be good or bad must depend upon the kind of knowledge for which the rewards of State employment are offered.

STREET ARCHITECTURE, ROUEN.

HOUSE IN THE RUE DU BAC.

CONTINUING our sketches in Rouen of the houses which followed those of the Mediæval period, we give one in the Rue du Bac, surmounted by a vase in glazed earthenware, which is carried up on a leaden base of good workmanship. The vases in "*fayence*" recall the period in which the ancient manufacture of porcelain in Rouen flourished, the productions of which, daily more rare, have acquired a certain reputation. The roofs of houses of that period which have preserved the ornament are rare, as much on account of their fragility as of the value borne by these vases in commerce.

The staircase, though in a very ruinous state, seemed to merit attention.

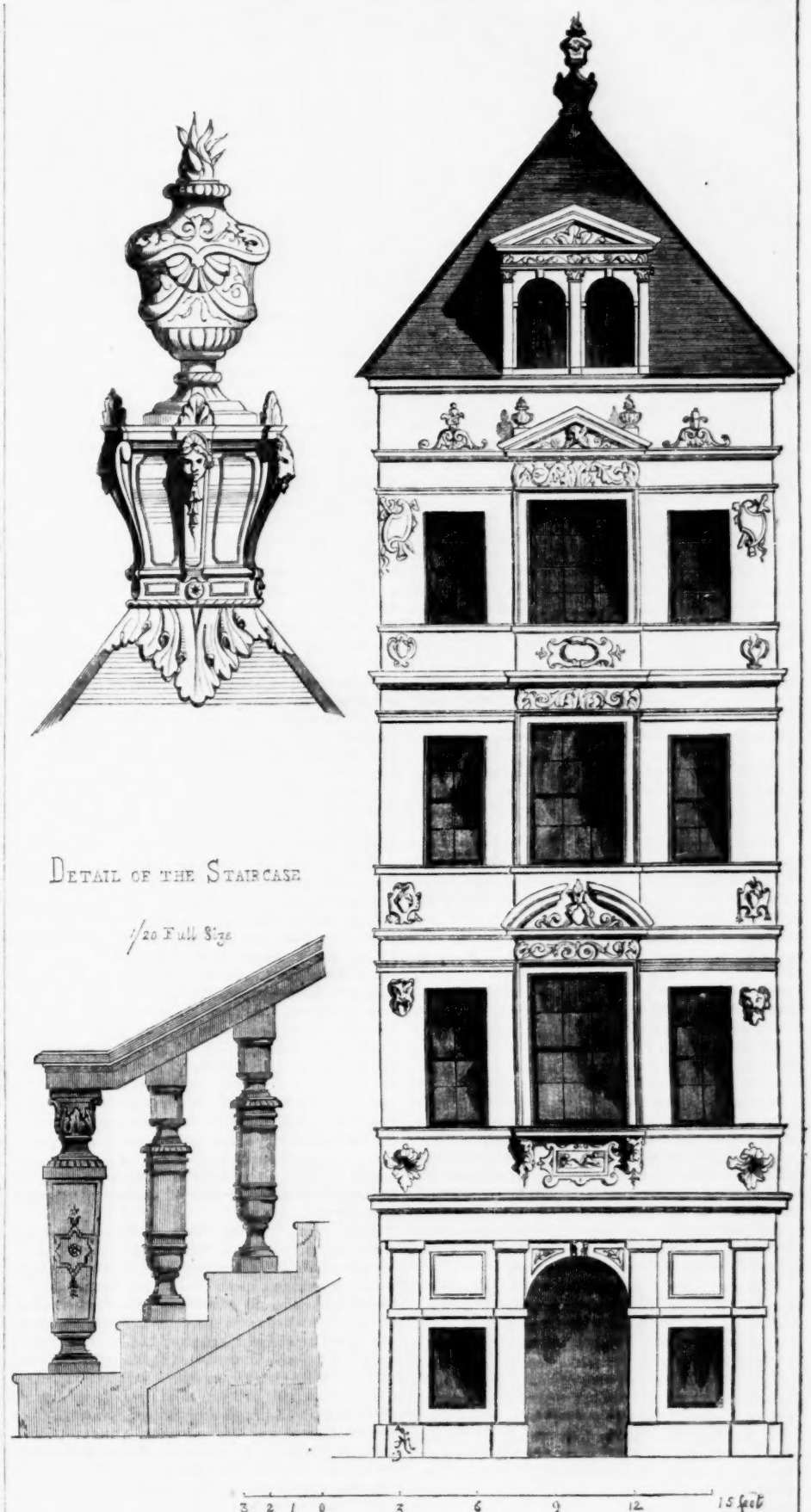
This house, though of an agreeable proportion, should be regarded from a distance. The sculptures upon it are much neglected. It is not given for imitation: the broken pediment on the one-pair floor is indefensible.

PERSHORE.

PERSHORE, a retired country town at the distance of nine miles from Worcester, pleasantly situated on the river Avon, is the locality of an architectural fragment interesting even in spite of its incompleteness,—for it consists only of the choir of the intended church of a Benedictine monastery formerly established there. As it would appear that the steps of tourists are but seldom directed to this secluded spot—my conductor informing me that visitors appeared at rare and distant intervals,—I trust I may be rendering some service to students of architecture in drawing attention to this very beautiful, and in some respects remarkable edifice.

The form and details of the four great archways at the crossing, upon which is raised the central tower, originally designed as an open lantern, but now darkened by a modern flat ceiling, and the aspect of the southern branch of the transept, denote, unquestionably, that a church of far higher antiquity once occupied the site of the present one. The broad flat soffits of the round arches, borne up by coupled shafts on the face of a pilaster mass; their extremely short and heavy capitals,—some rude and almost shapeless blocks—some channelled into a sort of inverted cones—some having the surface covered by interlacing designs—and one or two carved into human heads,—the arcade of three circular arches, a central wider one, and lateral narrower ones stilted to the same height in the east wall of the transept; the capitals of their shafts, heavier and clumsier than those at the crossing; one exhibiting an unskilful attempt at volutes curling out under the corners of the abacus; the base little more than a rude slope; the narrow gallery above these arches threading between the inner and outer faces of the walls, into which daylight is admitted through little round-headed apertures, on stunted bearing-shafts, crowned by cushion capitals; the similar openings higher up, one under each wall-rib of the vaulting, looking into a second ambulatory, likewise coinciding with the thickness of the wall; the arcade of circular-headed panels, simple depressed surfaces, along the foot of part of the east and the whole of the south wall, enriched on the face with a triple zig-zag and bands of studs (very like the nail-head), in the slightest possible relief,—mere surface ornament,—the strings under each of the galleries spoken of; the under side of one of them cut into a shallow star-moulding: all these are details forming an assemblage of the characteristics of *very early Norman work*. There are some insertions of the Perpendicular era in this transept which will be readily recognised, whilst the vaulting, in three compartments, is a pleasing example of the Decorated class, with longitudinal and transverse ridge ribs, and an additional one interposed between each wall-rib and the diagonal, with good bosses at the intersections, and shields along the ribs themselves. The bosses at the apices of the wall-ribs are formed of large ball-flowers. All are brought down, together with the wall-ribs, which assume the form of a very narrow acute-headed arch, upon corbels, which, if originally carved, have been since defaced.

The choir of the church designed to take the place of the old Norman structure, of which I have described the remains, is divided longitudinally into three aisles, the central one terminating polygonally to the east, in three planes of projection. The piers of an unusual plan, and perhaps from this very circumstance the more striking, are made up of a lozenge-shaped nucleus, with truncated angles, to which are applied triplets of shafts, with a shaft of greater diameter on each of the four sides. This pier is used *exclusively* on the north side, whilst on the south it alternates with one in which a triple shaft is substituted in the place of the single larger one on the faces of the lozenge. The pier-arch mouldings of two orders, each of two rolls, and intervening hollows, with a triplet of rolls as the sub-arch or soffit, have a singularly clear, strongly marked, and well-defined section, and a certain air of massiveness and robustness, which



DOMESTIC ARCHITECTURE, ROUEN.

harmonises admirably with the character of the piers, and with the general simplicity of the edifice. The hood-mould, a plain concentric roll, springs from carved tufts of leaves, as in the choir of Worcester Cathedral. The capitals, though not displaying the ingenious variety and delicate execution of those in the building just named, are, nevertheless, good and quite characteristic examples of the plainer ones of the Early English period. The triplets of shafts have a circular abacus, common to the cluster; the isolated shaft, one of the same form, which all unite: the profile, the usual overhanging filleted roll, and deeply cut hollow beneath. Every roll in the arch mouldings (except one), and the central shafts of the triplets, carry in front a square fillet. The base, of its proper section, has a circular outline as well as the plinth on which it is raised from the floor.

There is no Triforium; but I confess the absence of this always agreeable feature in our churches, is scarcely to be regretted in this instance, since by its omission height is obtained for an unusually lofty and elegant clerestory, which thus becomes the prominent feature of the building. The openings of the screen, formed in the internal face of the wall, drawn upwards in lengthened, graceful proportions, are divided by bearing-shafts of triplets, carrying pointed arches (the middle one stilted), with three bold rolls in the head. The abacus, base, and capital offer perfect identity with these members of the lower story. In the external wall is pierced only a single window, corresponding to the central arch of the arcade in front,—a seeming defect, to be accounted for, perhaps, by the fear of an excess of light which three openings would have admitted. The vaulting shafts, arranged in groups of three, under a common round abacus, rest upon richly sculptured corbels in the spandrils of the pier arches, and are ringed by the continuation over them of the clerestory string,—a filleted round. These receive the aggregate of the ribs of an admirable Decorated roof, possessing besides the usual longitudinal and transverse ridge ribs, one interposed between the wall rib and the diagonal, and between this and the longitudinal ridge rib, every intersection being concealed by open-work bosses of foliage of great size and surprising richness.

There is one detail, however, in the vaulting system to which objection may fairly be taken. The junction of the clerestory wall and vault is so managed as to necessitate the use of a rib to cover the intersection, of most unsightly appearance. An arch formed about an acute-angled triangle is, in this situation, the most pleasing and the most usual (we see it in the south transept); it is also the most convenient, because it adapts itself to any given height and width. In this case the span of the arch constituting the summit of the wall-rib being less than the interval between the vaulting shafts, there existed no other expedient of bringing down the extremities of the rib upon its supports than the addition of long sloping stilts diverging right and left after the manner, if so trivial a comparison may be allowed, of the extended legs of an open compass. Departure from architectural forms of recognised and admitted beauty is only to be justified by a result of greater beauty: an end certainly not attained by the novel disposition in question, which must, therefore, be set down as proceeding from mere caprice or defective taste, unless arising from some constructional necessity, which I shall presently show may have been the case.

An arrangement to which much importance is attached by some inquirers—ecclesiological, perhaps, rather than archæological—is that triplicity of grouping observable in the various component parts of the building. Thus, we find triplets of shafts, as members of the piers; triplets of window lights; in the soffits of the pier-arches, in the vaulting shafts, and ribs; in the openings of the clerestory screen. I apprehend this prevalent distribution into trieds not to have occurred wholly without design: and though we may hesitate to adopt the conclusions of some who, suspecting symbol to lurk under every detail of a Mediæval church, attribute to it a higher and holier import, it cannot be denied that this triplicity forms one amongst a numerous class of characteristics distinctive of Early English architecture at its best and purest period.

The extreme eastern plane of the polygonal termination is pierced with an archway, which formerly gave admission from the Sanctuary into a Lady Chapel, but which at present opens into a recess too shallow and insignificant to be entitled to this designation,—an addition made within the last twenty years. The arch springs from a different level, and rises somewhat higher than the one on each side of it. The piers differ not essentially from those already described, though some of the shafts are of Purbeck marble, and stand quite free of the nucleus of the pier. But in the arch mouldings there are evident signs of progression. For instance, the sub-arch, instead of the triplet of rolls, is formed of a roll and triple fillet, the fillet in front very broad, and this is generally found only in the more advanced buildings of the Early English period: and further: filleted rounds, continuous to the base, are introduced to separate the shafted orders. I think there are clear indications, too, of some change of design having supervened before the completion of the church; first, in the method in which the junction of the extreme eastern plane, and the one on each side immediately contiguous, is effected; the latter projecting over and overlapping the former. Secondly, in the outer order of the pier arch-mouldings on one side, not being brought down fairly upon the abacus of the shaft, but truncated at different elevations; the abruptness of this expedient being softened by concealing the ends with minute floriated corbels. And, thirdly, and most decisively, in the presence of a triple vaulting shaft in each re-entering angle of the polygon, cut off at some distance above the floor, and so rendered positively useless. The combination of the roof of the polygonal end, and of the adjacent bay westward, forms one of the most skilful and elegant arrangements of vaulting I remember to have seen.

The windows in the side aisles, where the original ones have not been displaced by Perpendicular insertions, are single Pointed ones, mere perforations, without mouldings of any sort, set behind a shafted arch, sometimes concentric, sometimes not, pierced in the inner face of the wall. To this disposition the most easterly window of the north aisle forms an exception, being a triplet, preceded by an arcade of three arches, on single bearing-shafts of Purbeck marble, an arrangement identical with the corresponding part of Worcester cathedral. At the east end of the south aisle is inserted a Decorated window, bounded horizontally at the summit, composed of four bifoil-arched lights under circular segments, all worked with a filleted roll. The vaulting of the aisles is plain quadripartite, with groin-ribs of characteristic section, springing from groups of triple vaulting shafts, resting upon the floor, and ringed by the extension over them of the string course at the foot of the window screens.

In the south transept is deposited a stone coffin, dug out of the adjoining burial-ground within a comparatively recent period. It narrows from top to bottom, and is closed with a heavy stone lid, on which reclines a cross-legged effigy, clothed from head to foot in the mailed armour of the thirteenth century: the head resting on a cushion, the right hand grasping a horn, and the left a shield pointed at its lower extremity. At the end of the south aisle there is one in less perfect preservation, of an ecclesiastic, with hands clasped on the breast: the sides are relieved by quatrefoliated circles, which seem to assign it a date not earlier than the fourteenth century. Near to this stand two other tombs of more pretensions, probably of the Jamesian era: they are of two stories, the base supporting columns of classical proportions, with Corinthian capitals, which bear up the flat canopy, under which reclines, in one, the effigy of a knight in complete armour, with kneeling figures at the head and feet; whilst on the base of the opposite one, are sculptured in high relief smaller male and female figures in the same attitude, attired in the primest of all costumes, and of exquisitely ludicrous expression.

Having completed my survey of the interior, I was about to quit it, when I was invited by my guide to be witness of his daily attentions to the church clock. Not very sanguine in the hope of any interesting discovery rewarding my compliance, I nevertheless followed him up the newel staircase, and quite unexpectedly found myself in an apartment of spacious dimensions and imposing decoration. Like the tapestried sides of some noble hall, the surface of the internal wall of this bell-chamber (for it is of this I speak), a quadrangle of 30 feet, and corresponding height, is covered from end to end, and from top to bottom, with a continued suite of panelling, of admirable design and careful execution. Divided into five compartments on each side, the central one is a narrow, pointed, trefoliated arch, the two on each side taking the form of a couple of ogee-headed lights, included in an equilateral arch, with a quatrefoliated circle in the head.* Along the foot of the wall extends a range of trefoil-headed arches (upper foil-pointed). Of the panels, the one on each side, immediately contiguous to the centre one, is pierced to admit light into the gallery, which the great thickness of the wall permits to render a really convenient one. At mid-height a broad frieze-like fascia, bounded on its upper and lower edges by the scroll moulding, and ornamented with sunk quatrefoils, enclosing ball-flowers, traverses the wall, profiling in angular projections over the vertical divisions of the panels. The trefoil-headed arcade at bottom is surmounted by a battlemented parapet, every merlon of which exhibits also the sunk quatrefoil. The mouldings with which the design is worked out are extremely bold and good, of three orders, and furnish an excellent example of that subordination and continuity of moulding in tracery which characterizes the Decorated in its native land far more strongly than in the countries into which it was thence diffused. The first order, a large circular fillet, traces out the principal arch of the panels, the vertical divisions between these, and is returned horizontally at the top, so as to make the compartment square-headed; the second smaller fillet divides the primary arch into the two ogee-headed arches, and forms the circle between them; while the third, a square fillet, constitutes the foliation both of circle and of subdivisions. It has been my good fortune to visit the belfries of not a few continental churches of a more or less ornate character; but I have never seen one in which so much care and taste have been successfully employed in converting this ordinarily neglected portion of an ecclesiastical edifice into one of its really striking and conspicuous beauties.

The Tower is, perhaps, scarcely a fair subject of criticism, as the completion of the church to the west of the crossing might have considerably modified our opinion of its effect. Certainly, in its comparatively isolated state, its proportions do not strike one as possessing much of that upshooting and aspiring tendency which we naturally associate with this grand external feature of our churches. Of the two stages above the roof, the lower one is pierced in each face with a couple of two-light windows (occupying only the middle of each side) composed of two trefoil-headed lights, carrying a trefoil under an enclosing arch, the unbroken continuity of moulding of which I have spoken reappearing here again. Each face of the upper story is occupied by four panels, in every respect identical with those in the interior of the belfry (the two middle ones opened as windows), with the addition of vertical strips of stone between the panels, and triangular ones above them, which appear not to have received the last finish, as we can scarcely doubt that the one was intended to be improved into a slender buttress with its crowning pinnacle, and the other to carry the customary crockets and finials. A string of the ball-flower, surmounted by a battlemented parapet, forms the separation between the two stages of the tower; the string alone is used for the cornice.

The windows, resting on a filleted-roll string, are simple perforations with double splay, except in one or two instances, where they are surrounded by a continuous roll-moulding. The plain hood-moulds are recorned for a short distance, but are not continued to the buttresses. These, below the aisle-roof, are of undiminished projection and breadth; above it they are set off twice, and capped with incomplete square turrets, which stop the lower ends of the flying arches springing over the roof of aisle, and abutting between the clerestory windows. The buttresses at the angle of the north aisle, set cardinally, are of very slight projection, and flanked by a single shaft in a recess at one corner, by a triple shaft at the other. The central tower is shored up at its north-east angle by an enormous sloping mass of wall prolonged from the clerestory parapet quite down to the ground. There exists only one variety of the corbel table, under the clerestory parapet of the choir—a succession of pointed arches supported on plain modillions.

It may be remembered that in describing the interior, the existence of three Norman archways in the east wall of the south transept was noticed. Of these the one adjacent to the crossing opens from the transept into the aisle. The original purpose of the middle one is not likely, perhaps, to give rise to much difference of opinion, an apsidal recess or chapel in this position being a very usual arrangement in cathedral, conventual, and other churches of importance of the Norman class. It is more difficult to explain satisfactorily the destination of the third. An arch of communication I think it can never have constituted, inasmuch as the lower part is closed by the wall arcade before spoken of, which has claims to, *at least*, as high an antiquity. However this may be, it would appear that subsequently to the completion of the early English choir, the unity of the plan was broken by the addition of a chapel parallel to the south aisle. Two of the Norman arches were walled up, and others of good decorated detail were, on the exterior, raised over them: at the same time, access was given by a third archway of similar character from the aisle into the chapel. This in plan is a parallelogram of two compartments in length, and as many in width, of which sufficient evidence is afforded by the responds of the vaulting shafts carrying the springings of three ribs, one transverse and two dingonals. Singularly enough, this chapel includes one of the original lancets of the aisle, and was besides probably lighted at the east end by two windows, of one of which the jamb mouldings, both external and internal, still remain perfect, with the groove between for the reception of the glass. The lower part of the

* I have used the term *circle*, but not with strict accuracy, because the outline of the quatrefoliated space glides at the top into the curve of the enclosing arch, and at the bottom forms a continuous curve with the heads of the ogee subdivisions.

wall which closes the outer, that is, the most southerly of the Norman arches, is relieved by a very good arcade of pointed trefoliated arches, surmounted by triangular canopies, crocketed and finialled, the fragmentary character of which seems inexplicable, unless we suppose it to be but the commencement of a decoration which it was designed to extend to the entire chapel, and that of this intention some now undiscoverable circumstance prevented the completion.

By how much the roof of the choir and transepts once exceeded in height the one actually existing, of so depressed a form as to be completely masked by the battlemented parapet of the clerestory wall, may be learnt from the gable lines on the south, north, and east faces of the tower. This unusually low pitch of roof in a construction of the period at which Pointed architecture had obtained its perfection (the vaulting below it being of Decorated character), is of itself a remarkable circumstance; and I cannot but think it affords us a little insight into the cause of that somewhat ungraceful intersection of vaulting and clerestory wall to which I have drawn attention in speaking of the interior. If we suppose the choir contemporaneous with the higher vaulting to have presented in its internal elevation the all but universal complement of three stories, the builder of the present one, when he determined to omit the triforium stage, must have found it a matter of extreme difficulty, if not impossibility, as a mere matter of construction, to raise upon the piers a clerestory wall of such gigantic height as to reach the elevation of the original vault; and hence arose the unavoidable necessity of lowering the new vaulting in a degree adapted to the diminished loftiness of the substructure.

That the vaulting in question was raised at a period subsequent to the erection of the central tower is plainly proved by the fact that the windows of its roof stage are not constructed without an exact reference to the inclined lines of the original higher gable, the central portion of the window which would be masked by the abutting of the gable being left incomplete, and the jamb mouldings and mullions dying off as they descend upon the raking sides.

The two western responds of the nave of the old Norman structure are still in their original position: ponderous cylinders built up in courses with heavy quarter-round caps. These are the piers of the nave of *Malvern* and of *Tewkesbury*, and much relied upon by some as clear indications of a mode of architecture prevalent before the Conquest. It appears, however, difficult to dissociate these fragments from the crossing and the transept, whose Norman origin is too manifestly impressed on them to be controverted by the most zealous advocate of so-called Saxon architecture; nor do I think, even if an interval of some few years could be clearly established, that these piers possess sufficiently strongly-marked differences to imply a distinction of style.

I returned to Worcester much gratified with my expedition, so much so, that I repeated my visit on two subsequent occasions. Should this slight memorial serve to make more generally known the church of the Holy Cross at Pershore, and especially its remarkable—may I not write, unique bell-chamber?—I shall not consider my excursion wholly fruitless.

VIATOR.

FIR, DEAL, AND FRENCH-POLISHING.

I HAVE read with much interest the papers of Mr. Wyatt Papworth, in your last numbers, and also the short discussion which arose thereon. I cannot help feeling much surprised that amongst the many men of eminence who took part in the discussion, the merits and advantages of "common fir," as an *ornamental wood*, should have been so completely overlooked.

Is it not strange that the great alumni of the decorative world should still stick to the old absurd fashion of disguising woods, instead of revealing their natural beauties.

This is a grave charge, and I make it gravely. It is too true, that many of our artists, employed in the internal decoration of houses, rack their brains to find new means of imitating and disguising woods, instead of studying the best means of bringing out their natural peculiarities and fitness for employment as decorative woods. Instead of wasting time in perfecting imitations of scarce or dear woods, it would be much better to employ the same amount of time in fully developing the natural characteristics of many of our native woods, now despised for decorative purposes, because, forsooth, they are cheap and common. This is a sad mistake. Many of our commonest woods are very beautifully grained, but their excellencies for ornamentation are lost, because our decorators have not studied the best mode of developing or bringing out their beauties.

Painting and graining, and imitating, have been carried to a sickening excess. The natural appearance of the woods has been entirely ignored. Why should our doors and cupboards be always painted? And how painted? Styles of French white,—panels, rose, pink, or salmon colour! For cheaper houses, the doors and cupboards, window linings, &c. are generally of two shades of stone-colour,—and vilely executed into the bargain. I prefer the natural appearance of the wood—whatever that wood may be—well and clearly varnished; but, better still, French-polished. Why is French-polish not more used in England? Why confined to cabinet-pieces and furniture, except in the houses of the upper ten thousand? Clear, colourless varnish ought to be more commonly used to finish off our joiners' work, instead of the common painting now so much in vogue.

I was much surprised on reading the following words in Mr. Papworth's paper:—"As another mode of covering a surface, the board now exhibited has been prepared to show how *deal* may be employed, without the use of oil-painting. The surface having been prepared, *it was at once grained*, the natural colour of the wood forming the ground of the imitation wood: the whole was then varnished as usual." Why paint the lily, or perfume the rose? Here we have a really beautiful wood actually spoiled by being "grained" over. As an experiment in effect, well and good. But I hope this style of work will never be seriously entertained. Let the wood alone,—*common deal*, properly treated, is very beautiful and ornamental.

I am surprised that it has been so long neglected for decorated uses, because its natural qualities for this purpose are of no mean order. It is worthy of more attention than has hitherto been bestowed upon it. I have seen, in my travels over the world, very beautiful specimens of furniture made entirely of "common deal," that would not have been despised in a London boudoir.

Our cabinetmakers, upholsterers, decorators, and joiners, appear either to be ignorant of the merit of *deal*, for ornamental use, or else they wilfully neglect to employ it, preferring to paint and grain, to their heart's content. Were our joiners and decorators to form their doors and window-linings of well-selected fir-wood, have them well varnished, or still better, French polished, painting and graining would soon be superseded. The difference in appearance is immense. I have seen rooms entirely fitted with "common deal," well French polished, and for such purposes deal, if well selected, is very beautiful, cheap, and pleasing. I have seen large wardrobes and dining-tables, made of deal, and being, as before observed, well French polished, they have puzzled more than one learned connoisseur to make out the wood,—for, *certes*, they never dreamt of guessing they were made of "common deal." Nay, more, I have seen the private rooms of a crowned head, where the only wood employed was this much-despised "common deal," and his majesty was rather proud of his "common deal" than otherwise.

In the Royal Palace at Berlin, one or two of the king's private rooms are entirely fitted up with deal fixtures; doors, windows, shutters, and everything else being of fir wood.

The reception-room where the King of Prussia usually transacts business with his ministers, and receives deputations, &c. as well as the adjoining cabinets, are fitted *with deal*, not painted and grained, certainly, but well French polished. The effect is very good. Few would fancy that no other material had been used but deal; for the wood is not only in this case ornamental, but useful; and, like myself, every one is surprised when told that this apparently new kind of ornamental wood is only deal. It is, of course, well selected, carefully wrought, and French polished *secundem artem*, which is the great secret of the business.

If our doors, door-cases, shutters, linings, &c. were made from well-selected, thoroughly-seasoned deal, carefully executed, and then well varnished, with a clear, colourless varnish, or still better, French polished, I have no hesitation in stating my certain conviction that it would very soon become the mode, and supersede the present system of painting and indifferent graining.

It is necessary that the wood selected for such purpose should be well grown, and from a fully developed tree, where all the fibres or grains are distinctly marked. The beauty of the wood, when properly treated, consists in the brilliant manner in which the rich, deep yellow streaks or layers of the hard wood are developed under the hands of the skilful polisher. These yellow veins show through the polish like clear and beautifully-marked streaks of amber, and strongly reflecting the light, they produce a very pleasing effect. The yellow, variegated, hard part of the wood, forms a very excellent contrast to the delicate whiteness of the softer parts of the board; and, if skilfully selected, the effect will be much admired, and certainly preferred to the best imitation of the more rare and expensive woods.

I am glad to find that Mr. C. H. Smith recommends varnish instead of paint,—and am especially pleased that Mr. J. G. Crace took the bull by the horns at the very commencement of his observations, by bluntly and honestly stating "that the very best way of treating wood was simply to varnish it, and not to smother it over with paint." To this I entirely agree, as far as it goes; but from what I have seen, I think French polish is far better, and will amply repay the extra expense. Mr. Jennings stated his opinion, that "French polish produced the best effect:" no doubt of that. He afterwards observed, "but if two coats of copal varnish were applied, and then polished, the effect would be as good:" this I doubt; but at any rate, it would be better than painting and graining, however well they might be executed.

For ordinary houses of the middle classes, I strongly recommend our builders to leave the wood in its natural state, with the exception of the application of clear varnish, to develope the colours,—and avoid the present absurd and unsightly system of painting. It will be much cheaper in the end, and the effect far more pleasing than is now produced by daubing the woodwork over with common paint.

I make a strong stand for the *beauties* of common deal, if properly used: it is really an ornamental wood, judiciously treated; and I firmly believe the time will yet come, when well French polished deal will fight a battle of extermination against the *red hot* furniture now in common use. It is far more chaste in appearance than the glaring red furniture of the present—Brokers' Alley style: let it be fairly tried, and its own merits will carry the day.

In arranging doors, panels, &c. much will, of course, depend on the skill exercised in selecting the wood, in placing the best parts in the panels, so that when polished the most pleasing effects will be produced. Much, too, depends on skilful workmanship and smooth finish, which can only be obtained by care, and using well-seasoned wood; but this is the case with any other species, and is, therefore, not applicable to deal alone.

I earnestly hope that such of our eminent decorators as have the opportunity will give deal *a fair trial*: let them boldly make the experiment, and I feel assured they will not only be pleased, but surprised, and in the end fully satisfied with the result. No paint, if you please, but plenty of good French polish, and "common deal" will be despised for ornamental purposes no longer.

JOSEPH LOCKWOOD.

ENGINEERING AND OTHER WORKS ABROAD.

On the 16th August, and 12th September last, the General Roman Railway Company (*Compagnie Générale des Chemins de Fer Romains*), made a lumped-sum (*à forfait*) contract with the Industrial Company of Florence (trading under the name of the *Crédit Mobilier Toscane*), represented by M. Cozino Ridolfi, and with M. Giulo Sarti, engineer at Genoa, for the construction and furnishing, all in complete working order, of the engines and rolling-stock of the whole line from Rome to the River Po, by Ancona, Bologna, and Ferrara.

The inauguration of the section from Nola to Palma, has just taken place. This portion, nine kilomètres in length, forms part of the Sanseverin Railway, which is intended to be ninety-four kilomètres long. The king of Naples, following the example of the ancient Romans, wishes to rid lazy souls of the evils of a garrison life by strengthening their bodies in the *tranchées de la paix* (railway works), and so fit them for heavy fatigue whenever it may be needed:—so it is said.

At the other side of Naples the Government push forward the works towards Rome: it has already signified its intention of building the great viaduct across the Volturno, at its cost.

The locomotives are built at Petrarsi, at which town the model workshops have made astonishing progress since their foundation in 1842. The shops, including a splendid foundry, forges, &c. and all material for any of their largest enterprises, give work to 1,300 men under Lieut.-col. Corsi, Royal Neapolitan Artillery, aided by Capt. Afan de Rivera, under the command of General D'Agostinho.

Thus, nearly all the Marine engines for their navy have been made at Petrarsi. Several others are in hand, including one of 400 horse-power.

From Naples to the frontier of the Roman States, the line has been opened for some years to Capua, and in two years it is expected to be open to the city of Rome. It is astonishing to see these works *already completing*, with the comparatively small *budget*, perhaps the minimum in Europe. The expenditure of the kingdom is not to exceed 140,000,000 of francs, for a population of 10,000,000. Out of this the Minister of Public Works gets only 20,000,000 of francs.

The Paris, Lyons, and Mediterranean Railway

Company are occupied at present with surveys, in the neighbourhood of Aix, for a branch line to join Marseilles with the Alps. The council-general of Sôane-et-Loire have voted that, with as little delay as possible, the Paris, Lyons, and Mediterranean Company should have the concession for a branch line from the Moulins railway to the Lyons line, which, starting from Paray, would join the Geneva line at Macon. The same council express a wish that the Nevers and Moulins lines should meet the Lyons line at the town of Chalons-sur-Saône.

The council of the Gironde votes in favour of the line from Bordeaux to Nantes, by Libourne, Blaye, Saintes, Rochefort, and Napoléon-Vendée. The line at present open for traffic is wholly inadequate to the wants of such a rich and commercial population.

For some time past an engineer has been occupied in studying several small branch lines in the department of the Var. The first is to connect Hyères with Les Salins, by locomotive traction, starting from La Garde, the first station on the Nice and Toulon line. The second by horse traction, will start from Hyères to Les Salins les Pesquiers, traversing and contouring the peninsula of Giens, as far as the Tour Fondue, and communicating with the shores of the lake by a small steamer. The third (also horse work), is to start from about the Places des Armes to Pont du Las, and thence to the Seyne, from which a branch will be made to the Marseilles and Toulon railway. The fourth (horse work also), starts from the Place St. Jean, and abuts at the extremity of Mourillon, following the boulevard de l'Eygoutier. The surveys are to be presented officially during the month of November, by the engineer, to all the municipal councils interested.

An experimental trip took place on the 15th of October on the Geneva line, as far as the entrance to the Credo tunnel. The directors, engineers, and guests formed the party, and most of them pushed forward by post carriages to Bellegarde, to a banquet, which was ready for them at the Hotel de la Poste.

The Custom-house,—a new one, at the expense of the Geneva and Lyons Company,—is ready for the roof. The central station, adjoining, advances with activity.

The difficulties encountered on the marly soils at the Lyons end of the Credo tunnel have been overcome. Not so the Surjoux tunnel: no sound bottom has been found: no sooner is a heading driven than it slips in immediately. The hill through which the tunnel is being driven is "sapped" to the foundations: the very vine-roots on the flanks are left naked by the innumerable "crevasses" occurring every day. The Credo tunnel is to be finished in three months: out of 3,950 metres there are only 350 to vault.

In a few days the line from Jativa to Valencia (Spain) will have the section from Jativa to Alcudia open to the public.

On the 10th of October, the Emperor of Russia approved of the following persons as lessees of the Warsaw and Vienna Railway:— Count Zamoiski, Count Potocki, Count Renard, Baron Murchwitz, M. Milde, the Bank of Eystein (Warsaw), and Prince Hohenlohe of Prussia.

The railway from Bregenz to Rheineck is conceded by the Austrian Government, and that of Lindau to Bregenz by the Bavarian Government, so that it will not be long before a company is formed for a belt-line, or "*Chemin-de-fer de Ceinture*" of the Lake of Constance.

THE STATEMENTS OF THE OPPONENTS OF GOTHIC ARCHITECTURE.

It is not my custom to reply to anonymous attacks, and it would be unbecoming in me to defend anything I have written, against fair criticism. My object in now writing is not to do either of these, but mainly to beg any of your readers, who may chance to have waded through the tirade in your last number, bearing the name of "Verax," to take the further trouble of referring back to your numbers of March 21, and April 4, in the present year, where they will find my lecture given at the Royal Academy, and to a more recent number containing another, read at Doncaster, and to judge for themselves how far your correspondent's statements bear out the title he has assumed. They will find, if I mistake not, that he has not only placed himself in a class to which I referred, "who delight to attach a false and exaggerated meaning to an expression," but that even to the charge of "palpable falsehood," which he does not hesitate to bring against others, he has, I am sure inadvertently, run the risk of exposing himself. Take, as specimens, the professed quotations given in inverted commas, "modern architecture, the last new original style;" "the last modern architecture."

If these are attributed to me, I am unable to find them.

Then, on the much-vexed question, as to whether the Pointed arch was imported by the Crusaders from the East, he first converts it into a question whether Pointed *architecture*, instead of merely the *arch*, was so imported; and then accuses me of having admitted it (!), deliberately quoting in inverted commas from my lecture the following passage:—"*The systematic adoption can with certainty be traced to the suggestive architecture of the East;*" whereas the passage really stands thus: "*If* its systematic adoption can with certainty be traced," &c.! Surely such a double misstatement is sufficient to turn against him the force of his own quotation—

"Quodcunque ostendis mihi sic, incredulus odi!"

I had in a previous sentence given a corresponding "*if*" in italics, and added the words, "a question which I will not now attempt to investigate;" and further on had repeated for a third time the same "*if*," thus showing, in the most emphatic way, that I did not make the admission which, in spite of all these precautions, he has the conscience to attribute to me!

It would not be easy for me to look through the multitudinous works of Mr. Fergusson and Sir Gardner Wilkinson, to test the correctness of his similar assertion respecting them; but, judging of the former by his most recent work, I should conclude that, while knowing well (as we all do) and broadly stating the antiquity of the pointed arch, he does not very confidently hold that our forefathers learned it in the East, much less does he hold that their *architecture* had any such origin:* on the contrary, he speaks of Gothic architecture (round and pointed) as belonging to the Teutonic tribes who had overwhelmed the Roman empire; whose successors I have termed "*Germanic*," he "*Gothic*," but both with the same meaning; while the Pointed Gothic, as distinguished from the Round, he says, there can be no doubt was "*invented in France*." He further attributes the introduction of the pointed arch to the necessities of vaulting, &c. Its origin he thinks of little importance, and holds that nearly all the other characteristics of Gothic architecture had already been attained; and he further holds with me, that Gothic architecture was the last in the series of original styles, at least in this part of the world. Sir Gardner Wilkinson, I believe, actually endeavours to show that the Saracens derived the pointed arch from previous Christian buildings, and Mr. Fergusson distinctly shows that the Saracenic style of Syria and Egypt was developed out of the Byzantine; so that I fear these two champions will not do him more good than my asserted admission. "Verax," however, goes further: he accuses me (again having recourse to inverted commas) of saying that "the architecture of the Saracens was already Christian," and actually takes the trouble to prove that it was not so! I need hardly say that I had made no such statement; but in speaking of the "architecture of the *soldiers of the cross*," referred not to the Saracenic (!), but to the Romanesque of Western Europe.

We next come to the statement attributed to me (or to some one else), that Justinian was the first to Christianize architecture. On this I need not dwell, as I do not find that I even alluded to the name. I will only add on this point, that it is somewhat new to hear the Greek cross stated to be less Christian than the Latin nave and aisles! It is, needless, however, to enter further into these particulars: the whole letter is one mass of such fallacies. The ages which covered Europe with the most wonderful and costly monuments, both ecclesiastical and civil, are said to have been those in which "the madness of the Crusades had exhausted all the resources of Europe!" The days of our Gothic cathedrals, of Cimabue, Giotto, the Pisan sculptors, &c. &c. are said to have possessed *no arts*; those of Abelard, Grossetête, and Dante, *no learning*: and those of the Italian republics and German free cities, *no commerce!* Those who think differently from your veracious correspondent, are accused of doing so from the lowest motives, and to hide their own idleness or their incapacity of learning the vernacular style. A design which has been often objected to as being *Italian* is now discovered to be pure *Dutch!* A style often objected to as Popish, is stated not to be Christian, because not found at Rome! Poor Pugin's death is attributed to his finding his theories to be erroneous, and those whom he wrongly charges with styling themselves his "followers," are accused of all kinds of things of which they are unconscious; and especially of underrating such men as Professor Willis, a man whom they hold in the very highest consideration; while the whole is interspersed with a mixture of seeming erudition and real coarseness anything but creditable. The only excuse I can make for the writer (in whom I, with much regret, imagine that I recognise a man for whom I have always entertained a real respect), is that he intended it (like his story of the "Young Saints," and their "cigars and whiskey-and-water") only as a pleasant fiction, and subscribed himself "Verax" only in the sense of "*lucus a non lucendo*."

GEO. GILBERT SCOTT.

* Since writing the above I have referred back to your report of Mr. Fergusson's paper on the pointed arch, read at the Institute in 1849, in which he unquestionably does take the view to which I alluded in my lecture as to the eastern origin of the Pointed *arch*, but most carefully guards himself against what he says being misinterpreted to apply to Pointed *architecture*. His words are as follows: "In adopting such a view of the question as this, there are two things to be guarded against, the first confounding the invention of the Gothic style with that of the Pointed arch,—a mistake too often fallen into. The first, however, is a purely indigenous and native elaboration from Roman art, without any trace of copying or even imitation. The latter is a mere subordinate characteristic of that style, and not at all entitled to the rank it has hitherto assumed in the controversy. The other mistake is to assume that it was copied from the East for copying's sake; the truth being, if we admit the above view, that the hint was given by the East, but nothing more: it was applied to Gothic buildings in a manner in which it had never been used in the East, and was so incorporated with and worked into the native style, that it soon lost all trace of its origin, and became as native as any other part of the true Gothic. Though, therefore, I do not think it can be denied but that the origin of the pointed arch is from the East, it must, I think, at the same time be admitted that all its appropriateness and all its beauty, as found in our mediæval cathedrals, is wholly due to the talent and ingenuity of our Northern architects, who wrought it into those forms of beauty and grace which we all now so fully appreciate and so universally admire" (*Builder* for 1849, p. 304-5): yet your correspondent asserts that Pointed *architecture* is Saracenic, and that "this fact has been abundantly proved by * * * Mr. Fergusson!"

MR. ARTHUR HOLME, OF LIVERPOOL, ARCHITECT.

Death has deprived the architectural body in Liverpool of one of its ablest members, in the person of Mr. Arthur Holme (brother of the present mayor), and who has died prematurely at the age of forty-three.

The local papers bear witness to the esteem in which he was held, and give some particulars of his career. He commenced in the workshops of his brother, and then passed some years in Birmingham studying architecture, as the pupil of Thomas Rickman. For some time he was in partnership with Mr. John Cunningham. The *Daily Post* mentions amongst his works, St. Paul's church, in the Prince's-park; St. Matthias's church, in Great Howard-street; All Souls church and schools, St. Aidan's church and schools, St. Alban's church and schools, All Saints' church, Great Nelson-street, and a church of greater ambition and architectural success than these,—St. Mary's, at Grassendale; the music-hall, in Bold-street; the slip at Eastham, and the waterworks for the military on the Curragh of Kildare. The *Courier* adds, the church at Crosby, the new façade of Messrs. Woolbright, in Bold-street, and the seat of Mr. Jonathan Peel, at Knowlmere.

Mr. Holme has left his children the best of possessions,—a good name.

STAINED GLASS.

St. Nicholas (Scarby).—A new east window of three lights has been placed in the chancel of the church of St. Nicholas, Scarby-cum-Ownbry, Lincolnshire. It was executed by the St. Helen's Glass Company. The centre opening represents the Ascension of our Saviour in presence of the Apostles. The two side lights are occupied by figures of SS. Matthew and John Evangelists, with their respective emblems beneath. Under the centre subject are the arms of the donor, with the inscription,—"Presented by Ann, relict of Richard Roadley, esq. A.D. 1857." The style of the window is Decorated.

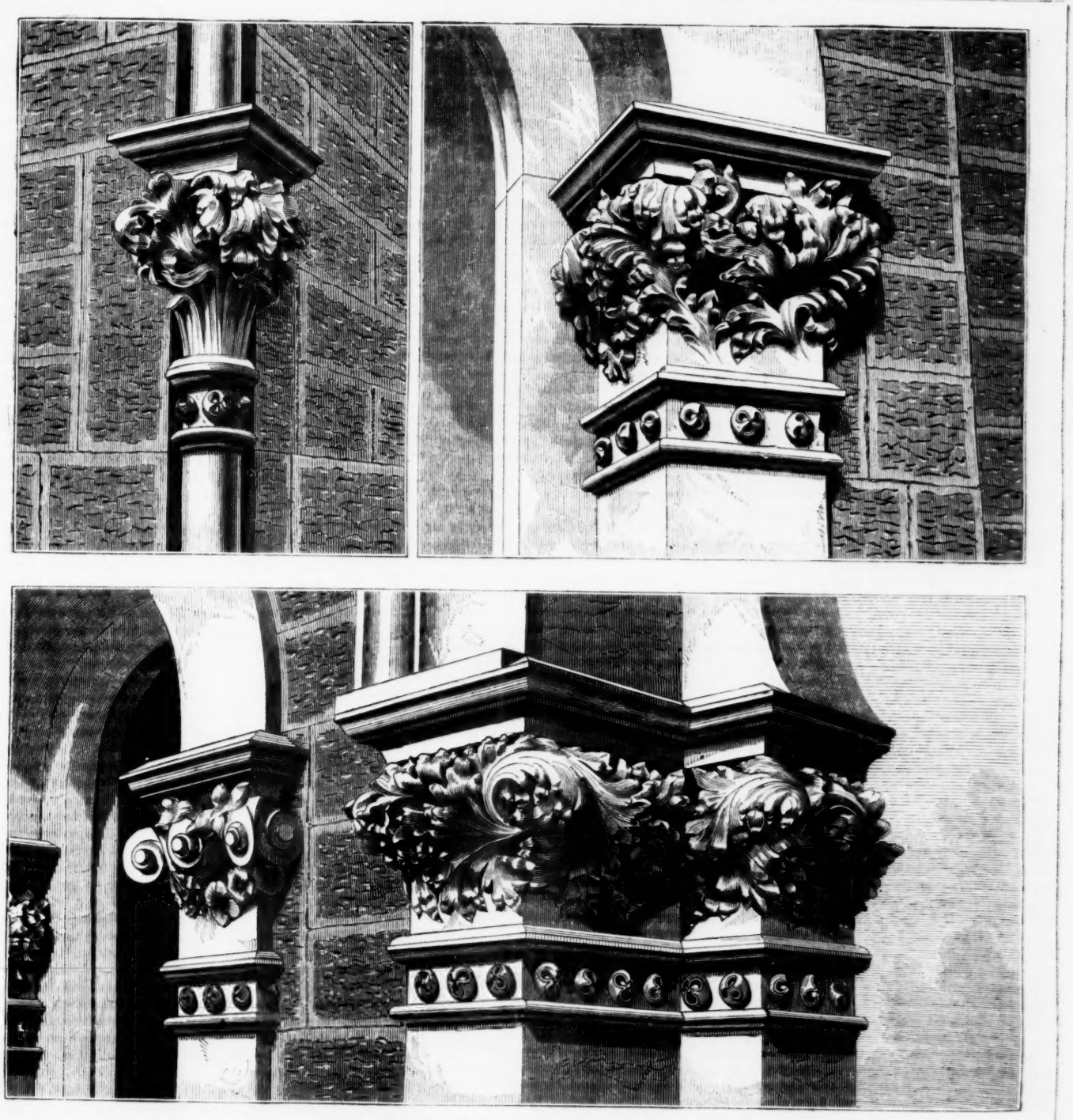
Clonmore (Ireland).—A memorial window, according to the *Carlow Sentinel*, has been erected in the parish church of Clonmore, to the memory of the late Honourable Mrs. Stopford. The design, which is Gothic, was given by Mr. J. Welland, architect to the Ecclesiastical Board, and the work executed by Messrs. Faircloth and Lynch, of Carlow. The painted glass was supplied by Messrs. Sillery, of Dublin.

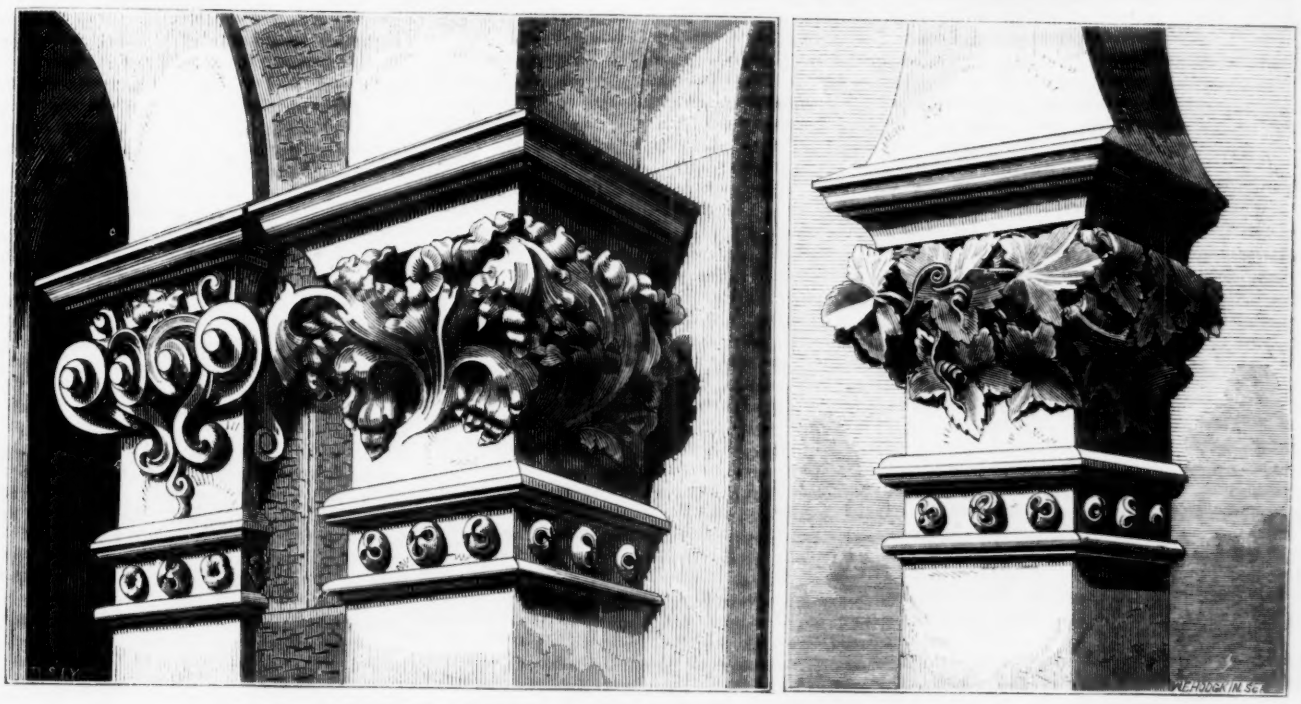
Miscellaneous.—The following are works executed by Mr. Warrington in various parts of the country, including Ireland: namely;—eleven windows in the new church at Lissadill, near Sligo; the east triplet containing a representation of St. Peter raising Dorcas;—the west window of Winwick Church, and the east window of the Orphan-house Chapel;—two Norman windows in Newington Church, Kent;—a series of windows for the chapel of Cheltenham College;—the east window of Ashover Church, Derbyshire, and others.

BAPTIST CHAPEL, PRESTON.

SCULPTURED CAPITALS.

In fulfilment of the intention notified in our account last week of the chapel now being built at Preston for the Baptists, under the direction of Messrs. Hibbert and Rainford, we have engraved representations of the sculptured capitals. Freedom was permitted to the carvers in the production of them.





BAPTIST CHAPEL, PRESTON: SCULPTURED CAPITALS.

WATERGLASS AND ITS APPLICATIONS.

OF soluble glass, or the soluble silicate of potash or of soda, and its varied uses, we have occasionally spoken, especially of its use in hardening soft and porous stone; in the production of artificial stone, as under Messrs. Ransome's patents; also in the suppression of damp in walls, the fixing of lime-wash and other colours, the starching of cotton fabrics as a substitute for flour or starch; &c. &c.

One of the most important inventions in the chemistry of the current century is the application of the silicates of potash and soda to the arts. These silicates, called "waterglass" because they are solved or easily soluble in water, though their composition is nearly similar to that of ordinary glass, were made use of almost thirty years ago, by Mr. J. N. Von Fuchs; but it is only lately that they are manufactured and used on a more extensive scale.

Several improvements made recently in the manufacture of waterglass by Liebig, Kuhlman, and others, and the better acquaintance with its properties, make it possible now to apply it with greater certainty, and at a moderate price. In this country, however, its value has not yet been sufficiently appreciated, while in France and Germany, large establishments are already engaged solely in its manufacture. In Great Britain, more especially, the varied applications of waterglass, it is believed, would be found particularly useful and profitable to manufacturers and capitalists.

Waterglass, produced either by directly dissolving silicic acid in caustic potash or caustic soda, or indirectly by heating a mixture of carbonate or sulphate of potash or soda with charcoal and powdered silica or quartz and dissolving it afterwards in boiling water, forms a tolerably clear solution, which, by exposure to the air, partly gets decomposed by absorption of carbonic acid: it is therefore advisable to prevent the admission of air by keeping it in well-closed vessels.

Used as a paint, waterglass is said to combine the properties of a varnish with that of a cement, and to possess further the advantage of being almost colourless, drying very quickly, evolving no smell, and rendering the surface of the object coated with it very durable, and almost indestructible. Another peculiar and important property of it, described by those who have used it, is, that it undergoes a chemical combination with certain porous substances, rendering the same almost as hard as stone, resisting afterwards the action of air and moisture. A piece of chalk, prepared with waterglass, will get so hard, it is said, after a few days, that it will produce fire on steel.

One of the earliest applications of waterglass was to prepare wood, paperhangings, linen, &c. so as to protect them from the action of fire, water, and air, and this, of course, is very important to theatres, factories, and all buildings more or less exposed to these elements. It is said to be sufficient to cover the object once or twice with a thin layer of the solution, which, in drying, forms a kind of glass, eventually insoluble in water, and partly chemically combined with the fibre.

Among others of its alleged applications is its use in preserving casks or other vessels employed in the beer or wine trade, and for the better cleansing of the same. All metals, particularly iron, are said to be prevented from oxidizing by this impervious preparation. Mixed with "Blanc-fix," according to Mr. Sicherer,* it forms, on glass, by exposure to high temperature, a white enamel, which also may be produced in varied colours. It is employed with much advantage, it seems, in painting on glass, and we may here observe that the chemists of the last and previous centuries used waterglass, or "oil of flints," as they called it, in precipitating various silicate colours from the metals, used in shape of salts. Red chloride of cobalt, for example, if precipitated in waterglass, forms a beautiful blue powder,—silicate of cobalt.

The chief application, however, of waterglass, is based on its powerful chemical attraction to mortar, brickwork, porous sand, and limestones, forming silicate of lime, which is very hard, and like glass. For example, a wall or stonework painted with the solution is said to combine durability with the property of drying very quickly. Once dry, it does not afterwards discolour; and the surface being like glass, it, of course, can be washed at any time, if necessary. Mixed with powdered chalk, or patent white and blanc-fix, it appears to form a good white paint, on wood, brickwork, &c. Any desirable colour may be produced, and the art of producing *al fresco* pictures in this style, on walls, is called "stereochromy," an instance of which may be seen at the new Museum, Berlin, of four pictures by Kaulbach. A stereochromic painting by this process has the advantage of not changing its appearance after a time. This method of painting, which is still capable of further improvements, is already adopted in many instances by artists.

The property of waterglass to combine with powdered chalk, lime, magnesia, sand, gypsum, and other porous substances, so as to form a hard mass, susceptible of a polish, and with unchangeableness to atmospheric effects, renders it useful for purposes of general ornamentation. It is said to form an excellent cement for stone, glass, and porcelain. Common limestone prepared with waterglass has been used in lithographic processes. Artificial Roman cement of very good quality is said to be produced from it. Waterglass has, also, been employed for printing in colours on paper, particularly paperhangings, linen and woollen textures, &c. in fixing gold and silver on paper, &c. Ultramarine prepared with waterglass preserves its colour better than with any other fixing agents. In dyeing it has been used as a mordant. Another new application of it is that of a substitute for soap. It is very cheap, does not act on the fibre, and is esteemed as a good detergent.

There are many other more or less useful or important applications of waterglass which space will not allow us here to mention.

* It may be of use to those of our readers who desire to become better acquainted with waterglass and its applications if we mention that Messrs. Sicherer and Hausman, of No. 17, Eastcheap, analytical and consulting chemists, state they have given special attention to this subject.

CHURCH-BUILDING NEWS.

Lynn.—A short time ago, the Wesleyan body determined on making extensive alterations in their chapel in Tower-street, Lynn, the architect engaged being Mr. W. Newham, jun. The tender of Messrs. J. and W. Purdy, builders, was accepted, and the work went on. A committee undertook the management, and the contract was executed by Messrs. Purdy. When the whole was completed, says the *Norfolk Chronicle*, the committee were horrified by the receipt of a "little bill" for 798*l.* being 361*l.* in excess of the contract price. This charge they strongly disputed, and the result was an action against them for the 361*l.* (the 437*l.* having been already paid). An amicable arrangement, however, was entered into while the case was under hearing, by which the contractors, receiving 275*l.* paid into court, were to be content with this, and pay all costs, excepting 25*l.* which the committee were to pay towards their own. In other words, the contractors were to receive 300*l.* and pay all the costs on both sides.

Stilton.—The church here has been restored and reopened. One of the chief improvements in the interior is the removal of a gallery or loft from the west end, which has exposed to view the tower arch, supported by four slender shafts, having embattled capitals. The newly-dressed Norman font, which is approached by new stone steps, has been placed under the belfry. The new pulpit is worked in Clipsham stone: it contains a series of panels having trefoil pointed arches. The seats are like those introduced into Ely Cathedral. The chancel has been renovated, and the windows have been replaced. The south porch has been refaced: the door is new, as is also the one at the west end, and each contains scroll-work. A new north door is to replace the present old one; and improvements are to be made in the vestry. Red and black square patent tiles, from the manufactory of Messrs. Moore, of Brosely, are laid diagonally in the aisles. In the course of the restorations several hundred cart-loads of earth, which had been accumulating for ages, were removed from the vicinity of the walls of the church. The whole of the work has been performed by the contractors, Messrs. Richardson and Son, of Stamford.

Milton.—On the 16th ult. the Bishop of Oxford consecrated the church at Milton, in the parish of Adderbury, which had been previously dedicated to St. John the Evangelist. The building cost 1,300*l.* Mr. Butterfield was the architect. The edifice is built of the stone of the country, with dressings from the Bath quarries, and it is covered with red tile. It consists of a nave, tower capped with low spire, and sanctuary. It has a porch and lich-gate. The nave has an open space at its westernmost end, forming a sort of narthex, in which is set the font and cover. It is benched for ninety, including the children of the school.

Andover.—On the 25th ult. two chapels were consecrated by the Bishop of Winchester at Smannell and Hatherden, in the parish of Andover. A few years ago an entire stranger provided 100*l.* a year for a curate for these most destitute hamlets until such time as a more permanent endowment should be secured. They have now been endowed by Winchester College, and two chapels of simple, though architectural character, under the direction of Mr. William White, have been built. They are calculated to accommodate 200 and 150 persons, and have been finished for 650*l.* and 700*l.* respectively. The nave and apsidal chancel are comprised under one roof, being separated internally by a low screen, and the larger chapel has a north aisle. The walling is finished internally in red and buff brick, and externally in brick and flint. The roofs are covered with plain tiles, and ceiled between the rafters with boarding. The fittings are of deal. The window-heads are cusped and partly traceried, after the style of the Early Geometrical period; and the apses, gables, and bell-gables are furnished with good metal crosses.

Quatford.—The church of Quatford has been repaired and enlarged, and was re-opened on Thursday before last. The south wall has been taken out; and the new aisle separated from the nave by an arcade of five pointed arches in Alveley stone. The aisle is lighted by three side and two end small gable windows. It has an open timber roof, the woodwork being stained and varnished. The nave is separated from the chancel by an old Norman arch, and built of tufa. It is conjectured that the whole of the original church was built of this material, as a large quantity has been found in the old foundations. The wall has been cleared off to the original stone, and pointed. At the west end of the interior, the arch, which was before wholly concealed by the gallery, has been thrown open and restored, showing a west memorial window. The whole of the seats (which are open) have been repainted and repaired, and a number of new ones added, making in all about 270 sittings.

Pentyrch.—The parish church of Pentyrch has been rebuilt, and was consecrated by the Bishop of Llandaff on Thursday week. The church consists of a nave 50 feet long by 26 feet wide, with an octagonal turret at the south-west angle, surmounted by a spire with an open traceried belfry-stage, a south porch, a chancel 25 feet long by 15 feet wide, and vestry adjoining. The style is Decorated Gothic, with flowing tracery. Advantage has been taken of the rapid fall of the ground to the east to obtain considerable height for the eastern end, which faces the road. The walls are constructed of Pennant stone, with Combe Down Bath-stone dressings. The building rises from a bold spur base, and is buttressed at the angles only by somewhat peculiar sloping buttresses set diagonally to the walls: it is lighted by a four-light west window, moulded and recessed with flowing tracery, and by three two-light traceried windows in the south side of the nave, and two similar ones in the north wall. The chancel has also a large three-light traceried east window, and two windows in the south wall, one having a single and the other double lights with traceried head. The roofs are all of wrought Memel, stained, and the ceiling, which is panelwise between the rafters, tinted blue. They are slated with Bangor slates of purple and blue, arranged in bands of these colours. The whole of the gables are coped with freestone. The turret rises to the height of about 70 feet, and is octagonal on plan, with a buttress on four sides, terminating with a pediment beneath the belfry-stage, which consists of a moulded two-light traceried window under a crocketed canopy, on each fall of the octagon forming a light open crown, whence springs a tapering spire, banded with alternately several plain courses of masonry, and several with slightly projecting weathering. The interior, which accommodates about 200 persons, is fitted with open loose benches of Memel stained, a Caen stone font, with pillars of red Devonshire marble, and an oak cover with wrought iron-work. The passages are paved with red and black Staffordshire tiles. The pulpit is of Caen stone, intended to be carved. The chancel is fitted with carved benches, placed longitudinally as stalls. The architects were Messrs. Prichard and Seddon, and Mr. Norman Brown was the contractor.

Wrexham.—St. Mary's Roman Catholic Church was opened on the 19th ult. The edifice has been erected at the sole expense of Mr. R. Thompson, of Wrexham, and together with the house, or vicarage, has cost about 5,000*l.* The church is in the Decorated style, and is built in Minera stone. It is above 100 feet long by 48 feet in width. The plan includes chancel, nave, aisles, side chapel, tower, large and small sacristy, and a confessional between sacristy and aisle. The presbytery is situated on the south side, and is a building capable of accommodating three priests. The chancel is separated from the nave by a highly-wrought and deeply-moulded arch, with carved and moulded jambs. The nave consists of five bays, the arches of which are moulded, and enriched with hood moulds. The nave is lighted by means of a clerestory, the windows of which are circular, and are sub-divided into four quatrefoils, variously arranged. The aisle windows consist of two lights, with ornamental tracery. Two vanishing arches separate the chancel from the lateral chapel. The east window commences at the spring of the roof, and consists of a large circle of tracery fixed in a triangular frame. Side windows are arranged to throw light on the altar: they extend into the panelled roof, which has the appearance of a chancel clerestory. The nave and aisle roofs are supported

on principals, springing from stone corbels, which will eventually be carved. The architect is Mr. Pugin.

Derby.—A committee, headed by Lord John Manners, M.P. has been formed for the purpose of carrying out the restoration and enlargement of St. Peter's Church, Derby. Mr. Place, the architect employed, estimates the total cost of the restoration at 2,400*l.*

Sherburn.—The church of Sherburn, near Leeds, has been re-opened. It has undergone some extensive alterations and improvements, in course of which many specimens of Norman architecture have been brought to light. The roof, which is high-pitched, is entirely new, and the windows have been filled with cathedral and white glass, in ornamental patterns. The two galleries in front of the tower have been pulled down, and the body of the church filled with uniform pews of oak, and stained deal, with much increased accommodation. Some stained glass has been put in the west window of the tower. Much of the old Norman work has been restored.

ARCHITECTURAL PUBLICATION SOCIETY.

We notice the recent issue of the second part of the works for the year 1856-7, consisting of thirteen plates in illustration of some of the articles in the letter C of the "Dictionary of Architecture," now in course of publication by the Society. These plates, like their predecessors, are full of useful and instructive material: some of them, we may say, are too crowded, but the subjects in them having been carefully disposed, they each have fair effect. The first plate gives us a "Canopy" covering the chair of the Cardinal Archbishop in the Duomo at Naples; a useful example, but poorly lithographed. Under the title, "Capital," we have two plates, which exhibit twenty-three specimens, chiefly of the Mediæval period: these will surely not be the last under this heading, although some difficulty will perhaps be experienced in obtaining sketches of worthy subjects which have not been already placed before the student. "Chimneypiece" follows in a fine but greatly dilapidated specimen from Linlithgow Palace, presenting three openings, which may be advantageously compared with those in Viollet-le-Duc's dictionary. We may say as much of the four other examples of a more domestic character, from Cashel and Kilmallock, in Ireland: these afford very useful hints to designers for ordinary purposes. "Chimney-top" ought to be the last plate (it is the fourth given) devoted to this almost exhaustless subject, but the committee has acted rightly in so often directing the attention of the profession this way. The present selection of twenty-three examples affords ample scope for alteration and improvement: many of the originals, it must not be forgotten, are used only for wood or charcoal fires. "Church," exhibiting an interior view of San Spirito, at Florence, designed by Brunellesco, is a tinted facsimile of a very careful drawing made on the spot by Mr. F. P. Cockerell, and affords some interesting bits of perspective effects: it is also good as a whole, and a record of a very curiously planned building. We should be glad to see many other examples of these interiors: they afford a large field for study, if selected with regard to their architectural merits, and not merely for artistic effect. The same observations apply to a following plate of "Confession," the example being selected from Fontane's "Chiese di Roma," an expensive, and, we believe, somewhat rare work in England: the plate is filled with the view looking up into the church of San Martino ai Monti. It will be inspected with interest even by those who have visited that great city, as travellers do not generally see this out-of-the-way church, which is well worthy of a careful inspection. The treatment, of the ornamental portion especially, in the lithograph, is, we suppose, the result of a careful imitation of the original Italian print: it reminds us of a style of engraving of former days in England. The plate of "Church-plan" presents nineteen examples of various types, commencing from the old basilica of St. Peter's (fifth to ninth century), and ending with St. Stephen's, Walbrook (1672). It is interesting to note the use of the circular apse from fig. 1 to fig. 13; the examples from Italy, France, and Germany; and the square eastern termination of York Cathedral, and the other churches selected from England. Boston Church, Lincolnshire (fig. 18), it will be remembered, has the merit of being the largest church in the United Kingdom without cross aisles. "Columbarium" reminds us of the manner in which many of the Roman houses kept together the remains of their families, servants, and clients. Instances of private mausolea will occur to the memory of all our readers, and something of the same kind is being gradually reintroduced on various scales in our public cemeteries. "Corbel" gives four very picturesque and suggestive examples for the country practitioner. To give examples of "Cornice" without dimensions, approximate or otherwise, and their height above the surface of the ground, is unsatisfactory: the specimens, however, are suggestive. The "Cortile" of the great hospital at Milan is shown in the next plate. Many of the details of this building will be found in the earlier parts. "Crocket" forms the subject of the last plate, and this we shall hope to see additionally illustrated, those before us being confined to one style, that of late French-Gothic; but they are charming examples of their class.

The materials for these plates have been, like those of former parts, collected and arranged by Messrs. Hansard and Lewis, through the kindness of the owners lending the original sketches. On the present occasion these consist of (taken as the plates occur), Messrs. C. F. Hayward, H. B. Garling, T. H. Lewis, H. R. Newton, W. Lightly, C. Fowler, jun.; R. H. Shout, of Yeovil; J. H. Walton, Professor Donaldson, F. P. Cockerell, Oct. Hansard, E. Blatchley, J. M. Lockyer, E. H. Martineau, H. R. Ricardo, Ewan Christian, T. Roger Smith, and from the sketch-book of the late A. J. Green, lent through the kindness of Mr. Tite, M.P. Our impressions, for some reason, are not all printed so sharply as usual: in fact, the work on some of the stones is not executed with Mr. Bedford's usual effect: a heavier and uncertain hand appears to have worked on many of the plates with a result less happy than that of previous parts. To speak more plainly, they are very ill done.

THE LATE WILLIAM DEANE BUTLER, ARCHITECT.

This gentleman, whose name as an extensive practitioner of about forty years' standing is familiarly known to the Irish public, expired suddenly at his residence, Stephen's-green, Dublin, on Saturday night, the 28th ult.

When Mr. Butler commenced his profession, after quitting the office of the late Mr. Beazley, to whom he served a portion of his apprenticeship, the number of architectural practitioners in Ireland was exceedingly limited; and, after a comparatively short time, he found himself in the enjoyment of an excellent share of business, which he preserved up to the time of his death. Mr. Butler was universally acknowledged to be an architect of considerable ability and excellent taste; and has left some permanent memorials to his fame behind him. Amongst his chief public works may be noticed the Roman Catholic churches of Roscrea and Monasterevan, both important edifices, in the Gothic style; the terminal buildings at Dublin of the Dublin and Drogheda Railway, of Italian character; the new cathedral at Kilkenny, recently consecrated, and the façade of the Palatial Mart, at Sackville-street, Dublin. Independently of these, Mr. Butler had an extensive private practice, and designed some mansions for the resident nobility and gentry; to his skill, too, Dublin is much indebted for some handsome shop-fronts.

The profession in Ireland may reasonably be considered to have lost its "father," as we believe Mr. Butler was its oldest member, and certainly he has left behind him a greater number of pupils practising as architects, and of eminence, than did any other.

For many years this gentleman held the appointment of architect to his Excellency the Lord Lieutenant, but we believe the emolument (if any) was very trifling.

The immediate cause of death seems to have been paralysis of the throat, and although Mr. Butler had, some twelve months since, an attack of that malady, which affected other portions of his body, his call from life was very sudden and unexpected. Mr. Butler has left a wife and thirteen children.

EXTENSION OF THE FOUR COURTS, DUBLIN.

The new buildings about to be erected for the Courts of Appeal and Incumbered Estates will occupy a site at the rear of the present Four Courts, and at the point where Pill-lane unites with Morgan-place. They will comprise a block with two projecting wings, and present a frontage to Pill-lane of about 130 feet, by a depth of 80 feet. In style the architecture will be consistent with that of the existing buildings, but of plainer character, having chiselled granite stone fronts with rusticated basement, simple architraved windows, and a continuous entablature of architrave frieze and cornice, with blocking over the same.

In height they will be three stories, exclusive of basement, which is intended to contain court-keeper's apartments, document rooms, urinals, water-closets, &c. &c. On the principal floor will be a grand stone staircase, and a corridor running through, off which are situated the various secretaries' and clerks' offices. The first floor will have a similar corridor, as also the commissioners' courts, each 28 feet by 28 feet, with ornamental ceiling and circular dome light; also a proposed court, to be erected hereafter, 39 feet by 38 feet; and masters' and examiners' rooms, clerks apartments, chambers, &c.

The courts are to be carried up two stories in height. All the buildings will be, as far as practicable, fire-proof, and the floors of the wide spans will be supported on a series of metal girders, with hollow brick arches. The ceilings in the basement are of arched brick also; and the foundations are to have a considerable quantity of concrete, formed of Medina cement, air slaked lime, clean fresh-water sand, and fine and coarse gravel. Over the commissioners' courts, iron lattice girders of 3-inch by 3-inch angle iron at top and bottom, with 3-inch by ½-inch tension and extension bars, so disposed as to form a series of equilateral triangles, will be introduced. The buildings to be finished against the 1st of June, 1859, under a penalty of 25*l.* per week. The probable expense will be 15,000*l.* or 16,000*l.*; and the plans have been furnished by the architect to the Board of Works. The commissioners are about applying to Parliament for a Bill to make considerable improvement in the locality of these buildings by the construction of a new street from the western side of Greek-street to the eastern side of Old Church-street, the closing up of Chancery-place, Mountrath-street, Morgan-place, and portion of Pill-lane, and the pulling down of a number of old houses. Should this be obtained, considerably greater building works will be undertaken than those now being contracted for, and the frontage to the quays greatly increased.

An iron tramroad is to be laid down from Stephen's-green to Round-town, the leading thoroughfare at the south side of Dublin.

ELM, NEAR WISBEACH.

THE ECCLESIASTICAL COMMISSIONERS.

Some of our correspondents are concerned to hear that in the repair or restoration of the chancel of Elm Church, slates are to be substituted for the old covering of lead. If we have been correctly informed, the facts are these:—The parishioners of Elm, in a laudable spirit, and at considerable expense, have cleaned, repaired, and restored the interior of their large and interesting church, and they intend to follow up this good work by abolishing the present unsightly pewing, and substituting for it plain but substantial, uniform, and commodious benches. It would appear that the chancel is in the hands of the ecclesiastical commissioners, as appertaining to a "suspended" canonry, from which the commissioners derive an addition of 1,200*l.* per annum to their already enormous revenue. The fittings of the chancel were mean in the extreme, and the east window and the roof were modern work of the poorest description: still the roof was leaded, which is the case, with but very few exceptions, in all the churches of the district.

The parishioners applied to the commissioners to repair and restore this chancel: the sum required is but a portion of one year's receipts; and, although we admit that, as trustees of church property, the commissioners might not be always justified in expending money upon mere ornament, we are strongly of opinion that they should act faithfully as conservators of the buildings which have fallen into their hands, and not suffer, under any pretence, the lead of a church or chancel to be stripped and exchanged for slates.

LONDON DIRT AND LONDON WANTS.

I ask leave to point out to Londoners, by your help, a metropolitan peculiarity which never fails to strike me, a provincial, as strange, offensive, and unnecessary. I mean the stupendous filth of London public places. I do not mean honest, necessary dirt, but neglected, accumulated, remediable dirt. I observe that in many districts the dirt of the roadways is left upon the surface from day to day, week to week, and month to month; stinking dust in dry weather, and, in moist and wet weather, stinking compost, varied, from an adhesive greasy paste, through different degrees of dilution, to the *ne plus ultra* of abomination, a liquid slush, about the thickness of pea-soup. I notice holes and corners,—poor alleys and courts, *culs-de-sac*, &c. where this dirt is piled and plastered in *masses*, like drifted snow. I see (to take merely one or two instances) the staircases and stairs leading from the London-bridge approach on the City side, to the street below, in a state of dirt utterly disgraceful. I cannot suppose cleansing has approached those places since they were opened as public ways. I see the pavement of the Piazza, in Covent-garden, caked over with dirt which seems to be never removed. I want to know why all this nastiness need prevail. I suppose rates are paid, or might be levied, for the expenses of cleaning the streets and public places; and it is inconceivable to me, living, as I do, in a provincial town of considerable size, containing plenty of the elements of dirt, but where the dirt is removed

day by day, that Londoners submit to this hideous nuisance of omnipresent, overwhelming dirt.

Allow me to offer a suggestion on another subject, occurring to me as an occasional visitor to London. Country people in town, leaving their hotels in the morning, and not returning to them till night, and, I doubt not, many Londoners away from home all day, greatly feel the want of establishments here and there, one of which I will describe as follows, viz.:—a clean, airy, well-lighted, and comfortable room, where rest may be taken, newspapers read, meetings appointed (perhaps with a private conference-room attached), and letters written, where refreshments may be had of the luncheon sort, more satisfactory than buns and ginger-beer on the one hand, and less costly and elaborate than the chop-house provision on the other, and where closets and washing-basins are at hand. I am disposed to think that a company would be a very profitable speculation, that had for its object to provide such places, thoroughly well-appointed, and attended by good servants, at moderate prices.

Other London wants are dining-places, or *restaurants*, of a sort very superior to the present average. After the club, to which comparatively few belong, there is at present nothing but the expensive hotel, the crowded, bustling, overheated, popular feeding place, the detestable gloomy chop-house, or the bad imitation of the French *restaurant*. The cheerful and comfortable *restaurants* of Paris might be very advantageously imported, and the *cafés* too. Let any one remember the various occasions when, on walking home at night from the theatre, or any other place, a desire has seized him for a glass of beer, or a cup of coffee. Out of certain districts where such things may be had, at places of an uncomfortable and unpleasant appearance, if not of a questionable character, nothing is open to him but the ginshop.

I fear to have already written more than you will like to print, but I never visit London without noticing the above shortcomings and wants, and this statement of them might set some people to devise and carry out the remedies. A PROVINCIAL.

"BIG BEN'S" ANCESTORS.

THE following extract from the "Repertory of Antiquaries" may afford amusement, and be of interest to your readers. It will show that one (at least) of Big Ben's ancestors was cracked like himself, and that he only inherits an infirmity which is constitutional in the family, and though, of course, every one knows that our courts of law are now so immaculate that the Westminster judges do not require the same prompting to duty that their predecessors did, they may, when they hear the voice of Big Ben, congratulate themselves that he is speaking for an object different to that of his unfortunate ancestor, Tom of Westminster.

"The bell called Tom of Westminster hung in a strong clock-tower over against the door of Westminster Hall, and about the beginning of the last century was granted to St. Paul's, whither it was removed, and stood under a shed for some years before the steeple was cleared of the scaffolding and fitted for such an ornament. The clock had not long been up before the bell was cracked and new cast, but with such bad success that it was thought necessary to take it down and repeat the experiment * * *

The clock-tower was standing till 1715; the occasion of its being built Mr. Maitland's 'History of London' gives as follows:—

'A certain poor man, in an action of debt, being fined the sum of 13*s.* 4*d.*, Redulphus Ingham, Chief Justice of King's Bench, commiserating his case, caused the court-roll to be reduced to 6*s.* 8*d.*, which being soon after discovered, Ingham was amerced in a pecuniary mulct of 800 marks, which was employed in erecting the said bell-tower on the north side of the said enclosure (New Palace Yard), opposite Westminster-hall gate, in which tower was placed a bell and a clock, which, striking hourly, was to remind the justices in the hall of the fate of their brother, in order to prevent all dirty work for the future.'"

P. C. N.

ON NUMBERING HOUSES AND NAMING STREETS.

IN a paper on various subjects read by Mr. Verelst last year, before the Liverpool Architectural Society, but not published, some remarks were made on the numbering of houses and the naming of streets, from which, as the subject is again occupying attention, we may make a few quotations. Much of what was read had chiefly a local interest, confined to Liverpool and Birkenhead, but our quotations will refer to what was said as to the points in question in various towns on the Continent.

In Paris, the numbers in those streets that are parallel with the river commence and continue on with the current of the stream, whilst those at right angles with the river commence at the river end, the numbers being odd on one side and even on the other, always commencing on the left hand.

The town of Manheim, upon the Rhine, was utterly destroyed during the lamentable wars of the Palatinate, and more recently again during the French wars, and has been several times ruined: it is therefore quite a modern town, and is rebuilt with all the streets at right angles. This afforded an opportunity for an effectual system of numbering the houses and naming the streets; but the system adopted is peculiar, for the streets, which are eleven in number one way and ten the other, at equal distances apart, have no names at all. In the centre of the town is one great street, running from the river to the palace. "The first row of blocks of houses parallel to this street, on each side, is numbered 1: the second row of blocks of houses on each side, parallel to the first, is numbered 2, and so on. But taking the blocks in cross rows, on one side of the above-mentioned great street, the row nearest to the palace is lettered A, the second B, and so on; and on the other side the street, the row nearest the palace is lettered L, the second M, and so on. Thus a letter and a figure are necessary to define any block of houses. In each block the houses are numbered 1, 2, 3, &c. Thus, in looking in the Manheim Directory for a person's residence, you will find, for instance, C 3, 6. This means No. 6 in the block which is defined by the mark C 3. The letter C shows on which row of blocks it is as taken one way, and the figure 3 shows in which row of blocks it is as taken the other way."* This system may appear complex in description, but is not so in reality: it could, however, only be applied in towns so regularly built as Manheim.

At Geneva, I am informed, certain streets are numbered, not upon the doors, but carved upon the curb-stones outside the footpaths, or, as they are absurdly and improperly termed in Liverpool, parapets, which do not mean footpaths, but walls breast high. The difficulty here is, that if two houses be thrown into three, a number is wanting; or if three houses be thrown into two, or one, there is a surplusage of numbers. It has been suggested that, instead of numbering the houses, it would be a good method to put the numbers upon the curbstones, as at Geneva, but at distances exactly five yards apart. These would not always come exactly opposite the front door, or perhaps even opposite the house, whilst sometimes more than one number would come before one house. But they would always be near, if not exactly opposite, a house or door, and would always be permanent, however the houses themselves might change. It would identify localities very exactly: a certain event took place at such a number, and it could be referred to on a map. It would also show the length of every street, and you might in a cab or car ascertain the number of yards of an entire journey. If a certain street contained fifty numbers, it would be instantly known to be 250 yards long. If you made a turning at No. 40, you would have travelled 200 yards along that street, and, by repeating the same in each street as you proceeded, could easily ascertain the total distance you had traversed.

Nothing can be more inconvenient or absurd than the repetition of the same name for many streets.

It is interesting to see how little the French have been guilty of this folly. Rarely are two streets of the same name; but they have, instead, endeavoured to do honour to all classes of men, not even confining themselves to the great names of their own country. For instance, they have the Rue Watt, Rue Newton, Rue Lord Byron, Rue Marie Stuart. Their naturalists are represented by the Rue Buffon, Rue Jussieu, Rue Cuvier; their writers by Rue Voltaire, Rue Molière, Rue Boileau, and Rue Lamartine; their battles by the Rue des Batailles, Rue d'Arcole, Rue d'Austerlitz, and more recently in Rue d'Alma, Rue de Bomarsund, and Rue d'Inkerman. How high and well-sounding are such names as Rue des Pyramides, Rue Castiglione, Rue de Babylone, though it must be admitted some of their names are not a little odd; as, for instance, Good Children-street (Rue des Bons Enfans), or 29th of July-street (Rue de 29 Julliet), Soft Sigh-street (Rue de Bel Respiro), English Gentlemen-street (Rue d'Anglais), English Ladies-street (Rue d'Anglaises). Among their few instances of repetition is one that must be admitted to be somewhat irreverent, viz. Hell-street, Hell Boulevard, Hell Barrier, Hell Market.

THE CONVERSION OF WOOD BY MACHINERY.

INSTITUTION OF CIVIL ENGINEERS.

IN the paper read on the 17th instant, "On the Conversion of Wood by Machinery," by Mr. G. L. Molesworth, a comparison was drawn, showing the more rapid progress of wood conversion in America than in England. This was ascribed to the greater cheapness of material and the scarcity of skilled labour in the former country, which gave a stimulus to invention; whilst in England the case was different, the material was comparatively expensive, and skilled artisans were abundant. Nor was the system of the subdivision of labour as yet fully carried out, the conversion of wood being hitherto in the hands of a class who could not employ much capital in machinery, or keep it constantly at work to the greatest advantage, even when they had it; and, at the same time, the prejudices of foremen and the combinations of workmen had operated powerfully against the introduction of new machines. Many of the machines of English construction had been of too costly a character, and in designing them sufficient attention had not been given to economy of the converted material. The cheap and simple character of the American machines was mentioned, and some of their characteristic details were described.

An account of the different kinds of saws, as well as the form of teeth, the modes of setting them, and the velocities adopted in England and in America was given, and the silent friction feed, the American "Muley" saw, the author's arrangement of a revolving wedge, the methods of cross cutting, the pendulous saw, Macdowall's circular saw, the pendulum, the dished saw, the scroll and the band saws were briefly described, and mention was made of Mr. Exall's improvement in the band saw.

The author then proceeded to enumerate the varieties of planing-machines, which he classified under five heads, viz.;—

1. The reciprocating plane.
2. The fixed cutter plane.
3. The rotatory cutters, on Muir's principle.
4. Ditto with vertical axis, on Bramah's plan.
5. The socket plane.

In describing these machines, the action of the carpenter's plane was compared with that of the machines, and some of the methods were mentioned by which its action had been attempted to be assimilated in the machines.

The planing-machines were shortly described, as well as the different forms and speeds adopted in England and America.

It was argued, that in order to produce good work the conditions to be fulfilled were, a high velocity of cutters, not too rapid travel of work, a solid bed to cut against, the working parts well balanced, the bearings steady, and the angles of the cutters properly determined. The author condemned the usual empirical method of determining the angle of the cutters, and insisted upon the desirability of taking into consideration the nature of the work, and the diameter of the cutters, in fixing upon the proper angle. He then stated those angles which he considered best for different kinds of woods and varieties of work.

Brief descriptions and diagrams, illustrative of the principles of the following processes and machines, were then given:—

1. The American shaping-machine, with pattern and concentrical collar guide, for planing irregular work.
2. The different methods of tenoning with chisels, or with an assemblage of circular saws, or with the ordinary tenoning cutters.
3. The copying-machine for producing fac-similes of a cast-iron pattern of any irregular shape, by means of rotatory cutters made to recede or advance by the pattern, which revolves simultaneously with the work.
4. Hughes's spoke-machine with tubular cutter-shaft, and moveable cutters, acted upon by a traversing pattern.
5. The railway key-machine, invented by the author, for cutting the taper simultaneously on two sides of the key.
6. Steel's oar-machine, as used at Chatham Dock-yard, for roughing out the oar with swivelling circular saws, and finishing it, by a series of cutters acted upon by a "feeler iron," so as to produce a varying form of blade and "loom."
7. The methods of dovetailing on Wimshurst's plan, by a series of rotating cutters, and on Burley's plan, by a series of reciprocating chisels and circular saws.
8. The method adopted in America of forming the dovetail on the mitre.

The different boring-tools were noticed, and an account given of the modes of mortising, by giving motion to the chisel and reversing it, as well as the forms of mortising-chisels, and the devices for clearing the mortise of chips.

The subject of timber bending was briefly mentioned, and a description given of Hookey's mode of bending ships' timbers, Meadows's patent for bending veneers into and around the sharp angles of mouldings, and Blanchard's method of bending all kinds of timber, by applying end pressure to it, while it was wound round a cam of the desired shape.

In conclusion, the author considered that wood conversion was not fully developed in this country, and hoped that this paper would direct the attention and ingenuity of engineers to the subject.

At a meeting on November 24th, an appendix to Mr. Molesworth's paper was read. After reference to the manufacture of casks by machinery, Hamilton's machine for sawing curved ship timbers was described as having an inner gate, and the blade so hung as to allow of a transverse as well as a swivelling motion, for curvilinear work; the log being so arranged as to be turned on its axis whilst travelling, and to be cut to any desired bevel. Green's method of adapting an indicator roller to this machine, for cutting variable bevels from a small scale diagram, was also mentioned.

A description of Jordan's wood-carving machinery was given, with his method of producing a species of floating movement in the table carrying the pattern and the work, under a frame furnished with a series of drill-cutters and a tracing knob, so as to produce several copies simultaneously from one pattern. The plan of carving under-cut parts by swivelling the pattern and work simultaneously, was also described.

A description was afterwards given of the ingenious machines, also invented by Mr. Jordan, for making the frames of school slates, at Colonel Pennant's quarries, near Bangor. The logs of American birch were first cut up by frame saws: the planks were then seasoned for six months, and were afterwards cross-cut to proper lengths, passed over a series of circular saws and grooving cutters alternately fixed on the same shaft: the mortises and tenons were cut in

* Murray's "Handbook."

two other machines: the end mortises, tenons, and shoulders were then cut, and the slates encircled by four of these pieces. The frame thus formed was then laid against two stops, and a pair of drills descended upon the opposite corners, making two holes: it was then reversed, and another pair of holes were made in the other two corners, pegs were inserted, and the work was completed.

PROGRESS IN THE CITY OF BAHIA, BRAZIL.

A company has just been formed for the provision of a patent slip, a jetty, capable of coaling the largest steamers, bonded warehouses, and stores, for the deposit of coal. Lieut. Robert Grundy, C.E. has been nominated by the Board of Directors, to act as directing manager, and the works are to be commenced forthwith, and carried on with such activity as can be compassed in this somewhat sluggish locality. Another company is talked of, to carry out the project of boring a tunnel through one of the hills in the city, in order to form a communication between the lower level of the city adjoining the bay, and an inland portion, from whence there will be an easy access to the upper level. The city of Bahia varies very considerably in level, and there is now only one very steep and dangerous carriageway, connecting the upper and the lower portions. The tunnel will have to be cut through solid granite rock, and although no very astonishing work in Europe, it will be attended with difficulty in Brazil. Mr. Vignoles, the engineer, has proposed and recommended this plan, which, when carried out, will be an important and valuable improvement to the city. Bahia is already provided with water-works, and some of the fountains which were purchased at the Paris Exposition have been placed in the squares. The buildings are well constructed, and in many instances considerable excellence is shown in the design of the fronts of the erections in the commercial parts of the city. The churches are very numerous, some of them being well worthy of notice in an architectural point of view. The Church of the Conception is interesting, being principally formed of blocks of marble, which were sent over from Europe ready worked, marked, and numbered so as to be put together in accordance with the design of the European architect. The paving of the streets is excellent, but not so heavy and substantial as we are here accustomed to, as they have in Bahia very little heavy traffic. There is abundance of stone, which is admirably adapted for building and paving purposes. Some of the ancient brick Dutch paving may still be seen in the older parts of the city. The population of Bahia exceeds 150,000.

DIFFERENCE IN BUILDERS' TENDERS, AND THE CAUSE.

In my letter to you on the subject of the difference in the amount of builders' tenders, nothing could be further from my intention than to bring forth any personalities. I am very glad the subject has excited considerable attention, not for this particular case, but on a general principle, with a view, if possible, to end a practice which strikes every one as being most remarkable, and only accounted for in one way, that some builders must be "rogues," either to themselves their creditors, or their employers.

It would be useless for any one to attempt to answer all the "perplexities of some persons," or the sophistries of others. I can have nothing to do with "fulness of quantities"—they ought to be, and I believe they generally are, correct ones,—"or the mistakes of others," "the pricing of all items," "or only part." My experience tells me, if I have to build a straight wall, it is worth so much a *rod*; if it has a circular corner, there is so much more labour to pay for; if it has a stone coping on the top, it must be paid for by some one; and if only a brick on edge in cement, it will cost more than if done in mortar.

Now, what are the facts before us?

Some gentlemen require an alteration or a rebuilding of their business premises: they apply to an architect, and he proceeds with his work, and produces certain plans. Surveyors are appointed, and they take out the quantities, and it will be to their disgrace if they are not correct, and neither full nor short, as they are to be well paid for their work. In my estimate, the amount put down for them was 67*l.* 4s. 3d. besides "20*l.* for expenses of lithographing."

The bills of quantities are delivered to the builders, and each contractor is at liberty to examine the drawings, and make himself master of the nature of the works to be performed. Now, all starting fair, what is the result—one builder asks 4,544*l.* another 2,800*l.*—something more than 62 per cent. difference.

I am not going to draw any inference between these two tenders, as it would be placing myself in the power of those gentlemen whom I have repudiated, the "bad calculators and the non-calculators;" but I take an estimate (my own) which is just the medium between the two, being 24 per cent. above the lowest estimate; and agreeably to my promise I have herewith sent you one of the bills of quantities, moneyed out the same as I had previously moneyed my own estimate, with 24 per cent. off each item, which brings the amount to 2,800*l.* I pledge myself they are all on the same scale, and you may judge yourself if I speak the truth, when I say that they are none of them remunerative, large or small, but generally on an average 12 per cent. under prime cost. The labour must be paid for in full, or the works will stop on the first Saturday night this is omitted, and the labour is generally considered to be about one-third of the amount of the contract—thereby throwing all the loss on the materials, which will amount to about 22 per cent. on their cost. I can perfectly understand how a tradesman, being a brickmaker as well as a builder, may sink the merchant's profit to make in himself a safe market, how a man with ready money may make a cheap market, and how savings are made in many ways, but I will defy any builder, be he whom he may, to make a profit out of such a schedule of prices.

J. F.

THE JOINERS' STRIKE AT MANCHESTER.

Dear Mr. Editor,—I beg to lay before you, and the readers of your valuable Journal, the facts respecting the strike now pending between the joiners and their employers in Manchester. Up to last May, our time of working was sixty hours per week, in summer, and fifty-five in winter, averaging fifty-eight per week the year through. In May, after much bickering and partial strikes, the employers acceded two hours per week; that was, to leave off at one o'clock on Saturday; but on the 5th October, the employers issued new rules without consulting us, that we must work fifty-seven hours per week, winter and summer alike, to commence on the 10th. After allowing us a week's grace, and we coming to no definite settlement (we having offered to work fifty-six hours per week, or fifty-eight in summer, and fifty-three in winter), we were turned out on the 19th. Since then we have been offered the arbitration of three architects, which we have refused. The mayor has kindly offered to interfere. We have refused that also at the suggestion of a letter in the *Guardian*. Altering the time to fifty-eight hours per week in summer, and fifty-five in winter, averaging fifty-six hours and fifty-one minutes, the year through, our employers offered us that which was treated with contempt.

Now, in the name of common sense, or humanity, can you, Mr. Editor, or any of the numerous readers of the *Builder*, point out any other rational mode how such unfortunate disputes can be settled? By so doing you will oblige, with many more,

A Joiner unwilling on Strike.

*** The rational mode of settling a dispute is that which the joiners have refused,—namely, a reference to impartial third parties, in whom all have confidence. As to the "common-sense" to which our doubtless well-intentioned correspondent appeals, we are forced to confess that we find very little of it in this unfortunate affair. Is this a moment, when building operations are being discontinued, when capital is not to be obtained but with the greatest difficulty, and a dark winter threatens all of us, for men to give up their employment on a question of one hour's labour a week? A joiner, or any other workman,—engineer, clergyman, or prime minister,—has the fullest right to take his labour to the best market, to obtain the full worth of his special skill, which worth is of course materially influenced by the amount of that skill elsewhere obtainable; but surely it would not be contrary to "common sense" to learn, before rejecting the offer of one customer "with contempt," what its real value in the market is, and to feel tolerably assured that a better customer could be found elsewhere.

THE MACHINERY FOR ART-EDUCATION

Sir,—The thanks of all parties interested in a wide-spread art-education are due to you for your able and impartial article in the *Builder* of the 21st ult. on the remuneration of masters of schools of art. There can be no doubt that if art itself is to be respected in this country; if it is ever to be wedded to industry; if it is ever to go hand-in-hand with our trade and commerce; if ever, as an integral portion of education, it is to rank with literature and science; its teachers must be enabled to hold a respectable, as they do hold a responsible, position in society. And there can be as little doubt that if the scale of payments is founded upon the minimum on which a youth, fresh from the training-class, can be induced to make an uncertain venture, to scrape together a precarious income, by five pounds here and ten pounds there, an allowance of 3s. per head upon national school boys, and 30s. per head upon national school teachers, who happen to pass an examination in drawing at the end of the year; if, I say, the remuneration of the art missionaries of the land is to be provided in this precarious way, can the country expect that art-education will, after all, result in becoming anything more than a delusion and a snare?

There is but one portion, perhaps, of the article to which I have alluded, from which I must beg leave to dissent; that is, the part that suggests that a considerable allowance should be made to an art-school for a year or two, and then be discontinued. I am afraid that, like many theories on this matter that look well enough upon paper, this would never answer in practice. I think those who have had any experience in provincial schools will agree with me, that the third and fourth years of a school's existence are those that are just the most trying to it: I mean a school that is working fairly and honestly under the same master; not one of those that are always found under a new name, and seem to be ever writhing under the spasmodic convulsions of continued fresh starts.

Before a school is opened, care should be taken that there is next to a certainty of its affording a respectable and increasing income to a master; that there shall be a fair field for the exertions of a clever and active man; and that there should be no fear, if he does his duty, of poverty or overwork preventing him from holding up his head in the town in which he is placed.

It is very well in theory to say the people should manage all this for themselves; that if they want art-education, they will pay for it, &c. The opposite theory is now pretty well established; and as Mr. Cole states in his lecture, reported in your number of the 21st ult. p. 666,—"As the people have felt their wants, and have had power to express them in Parliament, so the central authority has been called upon to administer to these wants; and it is the Government itself, rather than the people, which has endeavoured to obtain and preserve as much local co-operation as possible."

And since it is now pretty generally conceded, that a useful function of the Government is to aid in the art-education of the people, it merely becomes a question how this desirable object is to be effected. The Department of Science and Art, when it came into power, found, no doubt, in the schools of design, amongst much that was genuine and good, some abuses: it found some men (they were, however, only exceptions) in the receipt of considerable salaries, who were not devoting themselves to their duties with zeal and efficiency: and it is scarcely to be wondered at, that looking at abuses of the old system, the measures of the new one should be too sweeping; therefore, from paying masters fair salaries, with considerable carelessness, it came to paying them none at all, or only such an amount as should secure their connection with the Department from being entirely thrown off. It would not be doing the Department justice if it were not added, that an untiring energy was at once directed to the reform of abuses, and a system of training and examination instituted, so as to secure masters fitted for their work.

Much credit is also due to the Department for the recognition and adoption of parts of the scheme of the Committee of Council, such as the pupil-teacher system, which may be the means, in provincial schools, of obtaining a maximum amount of instruction, with a minimum cost; and what is chiefly required now is, that the Department should adopt some of the better and bolder, as well as the more *petite* portions of the committee's scheme. For instance, under the Committee of Council on Education, any master of any training college in the kingdom may come up for examination in one of various subjects, such as history, literature, geography, &c. and on passing a successful examination, become possessed of a lectureship on his own particular subject, which carries with it an augmentation of salary of 100*l.* a year, to which (I believe I am right when I say) the college to which he is attached is bound to add at least 150*l.* per annum. Now, I trust the nobleman and gentlemen at the head of the Department would meet with no contradiction, if by adopting this arrangement they asserted their conviction, that the time had now arrived when art is by all considered worthy of ranking high in our educational arrangements, and especially as art-knowledge has at last been recognised by the Oxford University in its middle class examinations.

The masters of schools of art should also be enabled to feel that some system has been fixed upon, and that there is no fear that by means of arbitrary changes, they may be deprived of even those small money payments now made to them by the Department. There seems a want of common honesty in making an agreement with men one month, and

breaking through it the next; or in inducing men, on certain conditions, to go through a laborious course of study, to obtain certificates that shall carry certain money payments with them, and then changing these conditions for others that in some towns it is impossible for them to fulfil. If the whole question is reopened before the country and Parliament, as it is not unlikely it may be, the injustice of the alteration will surely be insisted on.

Another matter in which the Department might safely follow the Committee of Council, is in the assistance rendered to local effort, in the erection of suitable buildings for carrying on schools of art. If a common elementary or national school for poor children is required, under certain conditions, a large portion of the expense will be met by the Committee of Council: why should not this be the case with Schools of Art? Why, if a local committee are ready to guarantee, say half the cost of building, to submit the plans for the approval of the Department, and promise to provide the greater part of a master's income, — why should not the State step in and give the requisite assistance? It surely would not be an unworthy outlay of a portion of the educational grant, and what is fair at Brompton can scarcely be false at Birmingham, or other provincial towns.

The Department of Science and Art deserves success, and with men of talent at its head, and established firmly as it now is, might throw off some of those ultra-economical shackles that at first restrained it, and by a wise and discriminating liberality (not confined to the metropolis), consolidate itself in public esteem and support. A CERTIFICATED MASTER.

THE WATER SUPPLY OF THE SUBURBS.

LEA-BRIDGE.

IT has been already stated that a portion of the Hackney marsh has been visited with fever and other preventible diseases, a circumstance not to be wondered at when it is considered that the dwellings are planted without care on the damp soil, and have no thorough means of drainage. I would, however, just now direct attention to the water supply of this already considerable number of houses, which promises shortly to increase. It has been remarked that the East London Water Company have formed a canal from the Lea river at a distance of several miles nearer to its source than this point, it having been shown that the large quantity of sewage discharged from the rapidly increasing district near this stream had rendered it unfit for human use; and notwithstanding this, and that the clear filtered water of the company is within a stone's-throw, and could be laid on to all these houses at a small annual cost, the inhabitants of the Lea-bridge take their water from the polluted part of the river, or from doubtful wells. The matter of the water supply, if provided for the poor of the metropolis, still requires great care, and it should be borne in mind, although the fact has not been generally noticed, that at the time of the breaking out of the last attack of cholera at Newcastle-on-Tyne, the ordinary water supply ran short, and a considerable part of the town was supplied from the Tyne, which was then little better than a huge sewer.

In connection with Lea-bridge, why should the poor people there be obliged to drink water which has been distinctly shown to be unfit for household use?

It is difficult to deal with properly already built, and which is often so fettered with ground-rents and other charges, that it is not a source of much profit; but people's lives must be taken care of, and certainly prompt measures should be carried into effect to prevent the growth of such neighbourhoods as Canning-town; and in order to effect this, no time should be lost in extending the circle round London which will come under the sanitary law? Some will say, "Why make a limit of any districts. But render it unlawful, in any part of the kingdom, to erect groups of dwellings which cannot be properly provided with the means of health."

LOOKER-ON.

THE APPRENTICESHIP SYSTEM.

AT the annual general meeting of the Royal Scottish Society of Arts held last week, Professor George Wilson delivered an address, in the course of which he referred to a paper on "the Apprenticeship System," read recently by Mr. James Robert Napier at Dublin. The object of Mr. Napier is to urge, in the plainest and fullest terms, that the system of long apprenticeships is a total mistake, wrongful alike to the apprentice, the journeyman, the master, and the public. He discusses the system from many points of view, and, before announcing that he has totally abandoned it, states that "it is evident that apprenticeships or long engagements are quite unnecessary, and that a business is learned much more quickly without such." He quotes, in special proof of this, two facts—namely, that the unrivalled tools of Mr. Whitworth, of Manchester, are made by men who at one time were common labourers, and that the engines on board all the vessels built by his father since 1852, when a great strike occurred in the engineering establishments of Glasgow, have been made by "men who were originally house-carpenters or joiners; that many of the best workers in his ship-yard were handloom weavers, and that half-starved nailmakers from St. Ninians, near Stirling, made passable riveters in about a month." It is impossible not to be startled by such a statement. If Messrs. Napier and Whitworth can procure fit hands for their nice work, said Mr. Wilson, by subjecting intelligent men to a few weeks' or months' remunerated training, instead of passing boys through five and seven years' apprenticeships, then the sooner—so far at least as the master is concerned — the latter are abolished the better. Mr. Wilson's own experience in the medical profession went with Mr. Napier.

COMMUNICATION ON RAILWAYS.

FOR years we have urged the necessity of enabling passengers to communicate with the guard. The want of the means to effect this is a blot in the system. Numerous suggestions have been made, but railway directors have not felt impelled to adopt one of them. Will Mr. W. Symons, of Dunster, be more fortunate than those who have preceded him? His plan is simple, and has much to recommend it. It provides an inexpensive method of allowing any passenger to communicate to the guard, whilst a train is in motion, a reason for wishing to stop the train. Two methods are provided for. The apparatus is simply a cord passing along the centre of the carriages, under the roof, with proper arrangements to facilitate the abstraction or addition of carriages at intermediate stations, and to allow for the contraction, expansion, and vibration of the train while in motion. There is also provision made to enable the guard to reach the carriage from which he has received the signal. This arrangement consists of a rail which, when not in use, hangs at the side of the carriage, and only projects a few inches, but may be extended to about 18 inches, so as to admit of the guard walking with perfect safety between it and the carriage; and it may be applied to all existing English carriages at probably a smaller expense than the French method. The second plan dispenses with the outside rail, enables a passenger to send a note to the guard, who, if necessary, may reply without leaving his seat, and should he see sufficient cause he can then communicate with the driver to stop the train. The apparatus for this could be applied to any carriage for a very small sum. Objections may be suggested, but we are very much disposed to think they could be obviated: at any rate the system ought to be tried forthwith on one of the lines.

NOTES UPON IRON.

SOUTH Staffordshire is not now that fiery pandemonium-looking place that it is when money is cheap and commercial credit is good. Between thirty and forty blast furnaces that a month ago were darting forth monster tongues of flame, each one apparently vieing with his neighbour in the fierceness of his endeavour to fire the welkin, now stand huge black spectres metamorphosed by the offended gods into monuments of their own folly; if not of that of some of their owners also, in fancying themselves millionaires by being permitted to use a portion of the money of those who are such. Taking the number of the furnaces recently put out at thirty, that number would be a decrease of those in fire in September to the extent of one-fifth; and, reckoning the make of each furnace at 110 tons, no less than 3,300 tons of pig-iron per week are now being manufactured in the great iron-making district of South Staffordshire short of that which was being made two months ago. A further reduction will take place.

In manufactured iron a much greater diminution in the quantity made must be noted than in the case of pig-iron. We think that we should be quite within the mark in setting down the malleable iron works as being employed to the extent of only half their capacity. Say that there are 2,030 puddling furnaces at these works—furnaces where only pig-iron is used—and that by each furnace there is on an average eight tons of puddled iron made every week, we have a weekly reduction of 8,120 tons of puddling iron, or half the quantity that was being made at the beginning of the quarter.

It is evident from these figures that the make of pig-iron is now largely in excess of the demand, and that, to prevent stocking to a large extent, a much larger number of blast furnaces must be put out.

The effect which such a reduction will have upon the labour of the district will be very serious. If every blast-furnace in operation affords the means of support to sixty families, we have, in the putting out of thirty blast-furnaces, 1,800 able-bodied men unemployed, who, with their families of four in each, become 6,400 persons without bread. Then, if upon each puddling furnace in work there are employed four able-bodied men having families, and two able-bodied men without families, we have a total of 6,090 able-bodied men, who with the families indicated, number 18,270 persons,—in all 24,670 deprived of the ordinary means of support, in connection with the immediate manufacture of pig and malleable iron in South Staffordshire. There are very few malleable iron works in South Staffordshire in full operation; we do not know of more than three or four.

Nothing was done at Wolverhampton or Birmingham on Wednesday and Thursday in the way of buying and selling; and scarcely any orders have been received during the week.

At Wolverhampton, the association of coal masters in that district resolved to reduce the wages of their men—the thin coal workers—from 3s. 3d. to 2s. 9d. a-day from the 19th December.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON Monday, 30th November, the ordinary general meeting was held at Grosvenor-street, Mr. G. G. Scott, V.P. in the chair; when the following Fellows and Associates were balloted for, and duly elected:—Mr. Gilbert R. Blount, Mr. D. Addington Cobbett, Mr. Thomas Cundy, jun. Mr. Robert Kerr, Mr. John Norton, and Mr. W. Haywood, as Fellows; Mr. C. B. Arding, Mr. Francis Edwards, Mr. F. Hyde Pownall, Mr. Robert Willey, and Mr. W. Lightly, as Associates.

Professor Donaldson, as foreign corresponding member, presented a work entitled "Iconographie des Chapiteaux de Palais Ducal à Venise, par Mr. Burges, Architect, et M. Didron, aîné, Directeur des Annales Archéologues." A bird's-eye view of the port, docks, and garrison, at Kingston-upon-Hull, was presented by Mr. Digby Wyatt.

A newly-invented lock, called the "Inaccessible Lock," was exhibited and explained by Mr. Blacket.

A paper, copiously illustrated, was then read by Mr. W. A. Boulnois, Associate, "On the Foundations of some of the Metropolitan Bridges of the River Thames;" and, after a short discussion, with thanks to the reader of the paper, the meeting separated.

ARCHITECTURAL ASSOCIATION.

AT a meeting held on Friday, November 27th, Mr. Norton in the chair, a letter was read from the town-clerk of Plymouth, relative to the competition for the new Guildhall and Public Buildings, stating that he had been unable to return an answer to the request for a copy of the plan and particulars of the competition, in consequence of a resolution of the town-council, passed on November 9th, directing proceedings to be suspended for further consideration. The clerk also stated, that the subject had again been considered at a meeting of the council, held on the 18th, and he was instructed to state that it had been resolved to postpone further proceedings for the present.

A long discussion took place relative to the desirableness or otherwise of locating the Association at the proposed new buildings of the Architectural Union Company, in Conduit-street. Ultimately, a resolution was passed empowering the committee to meet the promoters or directors of the Union Company, with a view to an understanding of terms.

Mr. Wigley read a review of the "Instructions on Ecclesiastical Buildings," by St. Charles Borromeo.

The Chairman announced that at the next *conversazione* a paper would be read on the "Progress and Development of Gothic Architecture," by the Rev. C. Boutell.

METROPOLITAN BOARD OF WORKS.

AT the last meeting of the Board, some architectural and building matters were considered and disposed of.

Approval was given for the construction of a factory, 94 feet by 50 feet, two sides to be constructed of iron and glass, by Messrs. Cubitt, the builders, for Messrs. Ely. The factory is situated near to Messrs. Cubitt's establishment, at the back of the Gray's-inn-road, and is to be used for the manufacture of newly invented wire cartridge, in making which no powder will be used upon the premises.

The Board refused an application from Messrs. Scovell, for the construction of an iron bridge or gallery, across Tooley-street, Southwark, having come to the conclusion that such structures and projections are obstructions to light and air.

Approval was given for construction of a winter shelter for the Atlantic telegraph, at East Green-

wich, by Messrs. Glass and Elliott, 850 feet long by 30 feet wide, and 12 feet high, to contain two coils of cable of 200 miles each, so as to protect the cable from frost and snow.

A special committee of the Board has been appointed to consider and report on the course to be pursued with reference to the provision of suitable premises for transacting the business of the Board.

A committee has also been appointed to take into consideration the "Amendment of the Building Act," and also to report with a view to dealing with the matter in the ensuing session, whether any, and what alterations may be desirable in the local management and Building Act.

Mr. Leslie has given notice of motion to the effect, that the Metropolitan Board of Works do offer three premiums, amounting together to 1,000*l.* for the best plan (by public competition), for the surface drainage of the metropolitan area, and conveying the rain directly into the Thames, or its tributaries.

THE STAGE AND MUSIC.

"*Richard II.*" *at the Princess's.*—A crowded audience assembled at the Princess's Theatre on Monday night to welcome the resuscitation of "King Richard II." after its temporary withdrawal, to make way for the later revival of "The Tempest." We were glad to see that during this short recess the scenery had neither lost its brilliancy nor the actors their energy; but still more gratified were we to observe that the audience evinced as thorough an appreciation of this most successful combination of architectural and costumic display, in strict accordance with period and precedent, as when the first of those grand revivals, that have conferred so bright an *éclat* upon the managerial career of Mr. C. Kean, proved how greatly artistic impersonation might be enhanced by rigorously correct scenic accessory, and how strongly public taste was inclined for the innovation. The same scenes that formerly riveted attention, still seem to retain their accustomed influence over the beholder. Neither the impressive solemnity of the bedroom in Ely House, with its "storied" walls, bay-window, and capacious chimney, nor the effective simplicity of the room in the Duke of Lancaster's Palace, with its equilateral vault, and coloured accessories; neither the decorated arches and elaborate panelling of St. Stephen's Chapel, nor the Norman vaulting of the crypt at Pomfret; the feudal grandeur of the Castles of Flint and Pembroke, nor the smiling landscapes that form so strong a contrast with them; neither the gabled streets of old London, nor the quaint characteristic representation of the Duke of York's garden at Langley;—none of these have yet lost their admirers or their freshness. Mr. and Mrs. Kean's reappearance in their old parts was greeted with that genuine applause only accorded to artists of the first rank. Of Mr. Kean's conception of the trying character of the most unfortunate of monarchs, we need only say that it contained all those nice gradations of emotion,—hope, surprise, majesty, humility, rage, and resignation,—according to the alternations of his feelings and his fortunes, which have rendered his impersonation of the fallen king one of the greatest triumphs of his long and arduous career.

Jullien's Promenade Concerts.—We confess we have held the present series of these popular entertainments in less esteem than any that have preceded it. A thinness in the occupants of the private boxes, and a cold apathy in the audience generally, may have conduced to our unfavourable impression, but a dispassionate view of the case may easily prove to the most obdurate that such apathy is a result, and not a cause, and that the remedy may easily be found in a *better programme*. The interest in concerts that are not based upon the works of the great masters must ever be but ephemeral. The "Indian Quadrille," too, has done more harm than good, and if it has drawn at all, it must have been from curiosity and not from merit, being lamentably and infinitely the worst descriptive piece of writing that ever fell from the pen of its clever author. A week's festival, comprising the works of the great masters, Haydn, Mozart, Beethoven, Weber, Mendelsohn, and Spohr, now, we believe, in progress, will go far, it may be hoped, to redeem the coldness of this year's audience, and also produce a golden harvest for the *entrepreneurs*. It is in combination with the immortal works of such writers, that the lighter music of lighter pens may be combined, and a delightful result obtained; but without the former ingredients in full proportion, audiences may be brought together, but will never be thoroughly satisfied.

Iron, Hardware, and Metal Trades' Pension Society.—A concert is to be given at the Hanover-square Rooms, on Wednesday, December 9th, for the benefit of the Iron, Hardware, and Metal Trades' Pension Society, when Madame Bassano, Miss Messent, Mr. Montem Smith, Mr. Frank Bodda, Mr. Chapel, Mr. Eliot Galer, and the members of the Vocal Association, consisting of 300 voices, will sing, and Madame Coulon, Herr Goffrie, and the Distin Family, will play. The object of the society, which has now been established fourteen years, is so good, that we should on that ground alone invite our readers to give their aid, but beyond this the concert promises to be an excellent one: so that on merely selfish grounds tickets may safely be taken. Mr. George Pitt, of 3, St. Stephen's-terrace, Bayswater, is the secretary.

Books Received.

Galleries and Cabinets of Art in Great Britain; being an Account of more than Forty Collections of Paintings, Drawings, Sculptures, MSS. &c. Visited in 1854 *and* 1856. By Dr. Waagen. Murray, Albermarle-street, London. 1857.

This fourth and supplemental volume of the "Treasures of Art in Great Britain," by the Director of the Royal Gallery of Pictures at Berlin, is acknowledged by the author not even yet to complete his voluminous account of the art-treasures in this country. He described those contained in his first three volumes as "almost incredible in amount;" but the vista rather opens upon him instead of closing as he progresses; and doubtless, although he does not promise it, we shall in good time have yet another supplemental volume, containing "a considerable harvest," and "much that is worthy of notice," but admittedly not yet recorded.

In spite of his foreign origin, and the occasional but excusable blunders into which on this account he here and there falls, Dr. Waagen has really done wonders in making our art-treasures known to ourselves; and though it is perhaps questionable whether a native art-*savant* would have been allowed such access to them as he has had, what has already been done cannot but show us what might be done by one possessing the advantage of being an Englishman, added to such art-learning and powers of research as Dr. Waagen possesses.

Meantime, we have not only to thank this gentleman for the ability and perseverance, as well as the success, with which he has ferreted out, and fixed on record, so many of our art-treasures, but also, to some extent, for the grand exhibition of these treasures which has just been closed at Manchester; and it is to be hoped that the British public will repay him by purchasing copies of the fruits of his labours.

The most important of the collections mentioned in this fourth volume are:—The British Museum,—its additions and changes; the National Gallery; Lord Yarborough's pictures in Arlington-street; Marquis of Hertford's; the late Mr. Morrison's; Sir Charles Eastlake's; Lord Overstone's; the Duke d'Aumale's; Lady Warwick's, at Gatton-park; Lord Folkstone's; the Prince Consort's, at Kensington Palace; Lord Amherst's, Knole-park; Mr. Bankes's, Kingston Lacy; the Duke of Northumberland's, at Alnwick and Sion; the Duke of Newcastle's, at Clumber; the Duke of Portland's, at Welbeck; and additional Notes upon MSS. both at Sir John Soane's Museum and University College, Cambridge.

Home Pastime; or, the Child's own Toymaker, with Practical Instructions and Illustrations. By E. Landells. Griffith and Farran, corner of St. Paul's Churchyard.

We have here an ingenious and by no means unuseful development of the card-castle science. It will teach children of ten or twelve years old something like a constructive use of their hands, which may be of practical service to them in after years when the stern realities of life take the place of childish fancy and amusement. How many handless, helpless mortals do we see grow up to be utterly dependent on others, in every little trifling hand's-turn or petty job that may require to be done, just from want of a little constructive education of the hand in childhood. The objects to be cut out and put together in Mr. Landell's amusing "Home Pastime," are engraved in outline shapes on cardboards, a number of which are enclosed in an envelope, along with the little tract of instructions. The forms are various, from Prince Albert's model cottages to a wheelbarrow, and comprise even such articles as railway and other carriages, engines, tenders, omnibuses, and perambulators, windmills, sledges, bedsteads, &c. By help of a sharp-pointed knife, a pair of scissors, and a little gum, these are convertible into good imitations of the veritable article in the solid, and may then be coloured according to nature. The tribe of little men and women are much indebted for this new pleasure to Mr. Landells, and, indeed (it being an ill wind that blows no one any good), to the illness of his own little son, for whose amusement this very decided improvement on card-castle building was invented.

Miscellanea.

Smoke Prevention.—Messrs. W. B. Wilkinson and Co. of Newcastle, writing to the local *Courant*, thus state their experience in smoke prevention:—"As regards common bakers' ovens, which we use for calcining gypsum, we have just made what we think a very manifest improvement, at a cost not exceeding five shillings. We have formed the roof of the furnace, two feet in length from the door, of a fire-clay lump, pierced its entire length with two apertures, opening above the furnace door, through which there passes a strong current of air over a red-hot surface: this, becoming heated, impinges against a vertical surface opposite the apertures, and is driven down on the top of the fire, improving, as we think, very much its heating power. We use small coals, and although a little smoke is made at the time of firing, it passes away in a few seconds after the closing of the door. The perforated fire-clay lump we have used is simply a sewer bottom, or invert block, turned upside down; and as this is now an article of commerce, and easily procured, we hope this communication may induce others to try it. We don't know that there is any originality in the plan."

Almshouses for Indigent Respectability.—Every almshouse founded by the benevolent in the course of time becomes a home for many who would either have to bear the greatest privation in their old age, or find an asylum in the workhouse, which, from the ignorance and depravity of many of its inmates, must be a wretched abode for those who have been in superior circumstances, and trained in moral and refined habits. For the small sum of 500*l.* or 600*l.* such a home could be erected and endowed, and I wish there was such an asylum, or a pension society, in every parish, for the aged of good character in reduced circumstances,—the scum of society being inmates of the workhouses, which are not, I repeat, fit homes for those persons of good character who have the misfortune to be destitute in their old age. In Wales there are very few. Were the gentry of the principality to unite to erect some, under the presidency of the Prince of Wales, for the natives of the twelve counties, it would be a great comfort to many aged persons in the decline of life. In the Isle of Wight, too, some might be founded for decayed natives, or residents of that part of the kingdom, her Majesty and Prince Albert being respectfully solicited to become patrons; and I should like to see some erected in every county as a county institute, irrespective of the local institution of the same description. With your permission, I would respectfully entreat the support of the ladies of England and the clergy to increase such institutions, believing them to be useful, and, in common with other undertakings, to improve the comfort of our poor suffering brethren.—A.

Railway Matters.—On the Cornwall Railway, at Saltash-bridge, the hydraulic presses are said to be most successfully employed in lifting the span of the bridge recently floated across the Tamar. The west end was raised 3 feet in about two hours, and the masons were set to work in building up underneath it. The second span is making progress.——The traffic returns of the railways in the United Kingdom for the week ending November 21, amounted to 421,670*l.* and in 1856 to 419,430*l.* showing an increase of 2,240*l.* The gross receipts of the eight railways having their termini in the metropolis amounted to 169,889*l.*; and last year to 173,141*l.* showing a decrease of 3,252*l.* The decrease on the Great Northern amounted to 2,408*l.*; on the North-Western to 1,819*l.*; on the Blackwall to 27*l.*; on the South-Western to 214*l.*: total, 4,468*l.* But from this must be deducted 116*l.* the increase on the Easter Counties; 882*l.* on the Great Western; 182*l.* on the Brighton; and 36*l.* on the South-Eastern; together, 1,216*l.* The receipts on the other lines in the United Kingdom amounted to 251,781*l.* and in 1856 to 246,289*l.* showing an increase of 5,492*l.* in the receipts of these lines.

Drainage Schemes.—Mr. Lipscombe denies that his *hydraulic* plan can have anything to do with the *atmospheric* system of a correspondent of last week, but we are unable to go into the question.

The Marylebone Cemetery Affair.—Sir: Observing in your paper of the 14th November date, under the head of the "Burial Board and the Contractors for St. Marylebone," that I am one of the *contractors* in the job, I beg to inform you that I have nothing whatever to do in the affair more than being one of the unfortunate securities. My surveyor stated that he would write to you on the subject: should he have done so, please not to take any notice of this; otherwise, please to insert this, as it stands to do me a considerable deal of harm in my business.—J. Culverhouse.

*** Mr. Culverhouse is in error. He is described in the article in question simply as one of the sureties. To make the matter clear for him, however, we print his letter.

CHELTENHAM SCHOOL OF ART. — On Tuesday evening, the 24th, a joint *conversazione* of the School of Art and the Literary Institution was held in the rooms of the latter Institution, the chair being occupied by the Rev. C. H. Bromby, principal of the Cheltenham Church of England Training College. The large room of the Institution was hung with paintings and drawings by the School of Art pupils, engravings, photographs, &c.; while on the tables were exhibited an extensive and interesting collection of stereoscopic views, a series of specimens of ivory turnings, galvanic and electro-magnetic apparatus, and microscopes, with a large assortment of microscopic slides, and objects, including those minute triumphs of photography which, almost small enough to be covered by the point of a large pin, and almost invisible to the naked eye, become, under the microscope, perfect portraits, and groups of figures. During the evening a paper was read by Mr. James P. Knight, the master of the school, "On Schools of Art," the object of which was to set before the public the advantages to be derived from art education, and the facilities offered for the acquirement of it, in the present schools, reference being made to the establishment of the Schools of Design, and the extension of the scheme into the present Schools of Art, under the Department of Science and Art. A vote of thanks to Mr. Knight, for his paper, was proposed, in flattering terms, by Mr. W. M. Tartt, J.P. A paper was also read by Mr. Pottinger, "On Photography, in connection with the Fine Arts," for which a vote of thanks was proposed by Dr. Wright.

"STEAM SUPERSEDED."—Professor R. Ramsay Reinagle's application of atmospheric power is thus enthusiastically described by himself, according to the *Oxford Journal*:—"I resolved to get made a rude model of a two-yard pea-shooter, with a trumpet mouth-piece, and a large open conic emission-end. I prepared a piece of deal board to act as a roller on four wheels. At one end of this rude car I nailed a piece of wood as a lead-board, against which the conic mouth at the end of my pea-shooter could come in close contact. My experiments electrified me with delight. I could blow my car many yards in a moment, as if struck by a mallet or a cricket-bat! I then placed about 26 lbs. in the form of a large scuttle of coals, and blew the car so weighted over a Turkey carpet about 16 inches almost momentarily. * * * This was the beginning of my invention of a compressed air-engine eighteen years ago. It is now greatly simplified. In an apparatus, consisting of a cylinder, 12 inches in length, with a bore of 1 inch, when the piston, at the last twelfth of an inch, shall have compressed the 144th part of a foot, the density will assume sixty atmospheres, and will support or raise 630 lbs. Now, suppose I submit this last compressed quantum of air to rarefication up to 750°, which is equal to 21 times, then it follows that (as 21 × 630 = 13,230) 13,230 lbs. are raised, If, by hydraulic pressure, I submit that minimum portion of air to a compression of 144 atmospheres (the density adopted by the Portable Gas Company twenty years ago), then, without any rarefication, the small quantity of air will lift or support 79,720 lbs.: when rarefied up to 750°, or 21 times, the increase is thus: 21 × 79,720 = 1,674,120 lbs. This my engine can effect in half a second, which equals in a minute 200,894,400 lbs. At 200 atmospheres (easily obtained) the total amount raised in one minute will be represented by a much greater amount. My invention then gives upwards of 3,352 horse power. When my engine is at work, I can guarantee that it shall work night and day for centuries. It takes thirteen hours before the piston reaches the last inch in the cylinder, and it will cost only half a minute to revolve and set in motion again. Let us suppose that to propel a ship of 2,000 or 3,000 tons burden, globes or cylinders be charged with 200 atmospheres, and kept in the hold. This amount of noiseless, quiescent, terrific power, can be taken to any part of the world.

THE ROYAL MUSEUM AND LIBRARY AT PEEL'S PARK, SALFORD.—The ninth annual report of this thriving institution has been printed. The committee congratulate the borough council on its progress, "far surpassing all former experience." The total issue of books from the whole Library, during the twelve months ending the 31st October, amounted to 147,814 volumes, divided in the following manner, viz.—

Reference Library.....	84,342	volumes.
Lending Library	63,472	„
Total.....	147,814	„

These issues exceed those of 1856 by 5,330 volumes; of 1855, by 32,357; of 1854, by 82,452; and of the aggregate issues of 1850 to 1853, by 39,143 volumes; and, taking the present extent of the volumes in the Library actually available for readers at 20,000, it follows that the whole of the books have circulated, during the twelve months, rather more than seven times; giving a daily average of 493 volumes, from both departments of the Library.

IMPROVEMENT OF PUBLIC TASTE.—There is no branch where bad taste is more prevalent than in household furniture, &c. In the theatre of the School of Design at Brompton there is an excellent plan of placing pieces of carpet, printed calico, wall-papers, pottery, glass, plate, &c. of bad design with tickets attached, explaining where the false principles exist. Now, I think there ought to be something of this sort in the Museum, thrown open to the public, with patterns of good design beside them, in order that the public taste may be gradually improved, which is at present at such a low ebb, that even those people who do go into the Museum go as a sight,—they are not improved in taste. The public of the nineteenth century is so ignorant of beauty that they must be taught the very rudiments by examples and tickets. — C. DE VAUGIER.

RESTORATION OF MANCHESTER CATHEDRAL.—The churchwardens propose a complete restoration of the whole building, and appeal, not only to the parishioners of Manchester, but to the inhabitants of the whole diocese, for assistance. They state that they are desirous the work undertaken should be strictly *a restoration* of the ancient edifice. The works necessary to complete restoration of the exterior are the rebuilding of the tower upon its present site, renewal of the stonework of north clerestory to correspond with the south, renewal of the pinnacles, and extensive repairs of the stonework of the walls and mullions of the windows, and renewal of the lead roof upon the nave and side aisles. The interior, also, requires thorough renovation, the free pews in the nave re-arrangement and renewal, and the unsightly wooden galleries in the nave and aisles should be removed. The plans have been approved by the bishop and the dean and chapter. The estimated cost is 18,000*l.* or 20,000*l.*

GREEN WALL PAPERS.—In reference to a subject on which some discussion lately took place in several of the journals of the day, including the *Lancet*, which had urged attention to the injurious effects resulting from the use of green papers, coloured with some green salt containing arsenic, usually the arsenite of copper, or Scheele's green; the same paper now states that after experimenting on the subject, it appears that "green papers containing arsenic, when carefully manufactured and well-sized, may be employed with safety in the papering of rooms. There is one precaution, however, which ought to be observed; that is, not to make use of the room for a few days after it has been papered, and until it has been well ventilated, and this for the following reason: during the operation of papering, some of the arsenical pigment becomes mechanically detached, and is suspended for a time in the atmosphere of the room, and is, of course, inhaled by those who occupy it. We are inclined to attribute to this cause some of the injurious results stated to have followed the papering of rooms with certain descriptions of green paper."

THE KILKENNY ARCHÆOLOGICAL SOCIETY.—The November meeting of this very active and thriving association was held in the Tholsel at Kilkenny, on the 4th ult. the Dean of Ossory in the chair; when twenty new members were elected, and two societies also received into the community of membership. A number of donations were presented, and various objects of interest exhibited. Several papers were read, including one of a series on the topographical department of the Ordnance survey of Ireland, by the Rev. J. O'Hanlon, the present subject being the county of Wexford. A paper on "The Scandinavians in Leinster," by Mr. H. F. Hore, was presented.

DAMPNESS IN HOUSES.—The great evil seen and felt from the damp walls of most new houses, might readily be prevented by adopting a course I witnessed at the village of Cowden, and said to be carried out by a builder, I think, of Penshurst, in the county of Kent. It is to mix hot lime and sand as mortar, with the addition of coal tar, and put one layer of the said composition to receive the course of bricks previous to the plate for groundfloor joists.—ANTI-DAMPER.

SHOULD ARCHITECTS SOLICIT?—I want to know whether it is customary for architects to solicit orders from "persons about to build?" After a fire which lately occurred at Wolverhampton, an enterprising firm took the earliest opportunity next morning of "requesting the favour," &c. &c. I don't think this is *usual* amongst professional men, because I have seen in your papers complaints against architects making their *art* too much of a *trade*; but as the above firm make a frequent practice of doing it, even when other parties are engaged, I *may* be mistaken in my notions, so "I want to know you know."—TITE BARNACLE.

GAS.—Will the *Builder* kindly submit the following knotty query to its learned readers? How is the plural of *gas* formed? Some orthographers make it *gasses*, while others contend that it should be formed by adding merely *es*,—gases,—in accordance with the rule that nouns in *s* form the plural by adding *es*; and also, as the word gas has the sharp sound of the double *s*, the *es* in the plural is all that is required.—J.B.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—The quarterly meeting of this society was held on Tursday in week before last, at the Guildhall, Norwich, Sir J. P. Boileau, bart. in the chair, when the Rev. C. R. Manning read a communication from Mr. A. D. Bayne, on "The early settlers in East Anglia," a subject illustrating the connection of ethnology and archæology. After some discussion on the subject, the members inspected a variety of curiosities on the table, and Mr. Fitch exhibited a curious British vase. The Rev. C. R. Manning exhibited a drawing of the font at Ranworth, dated 1705, which then had a lofty pyramidal cover, painted in red and other colours. Mr. Daveney contributed a drawing of a Latin inscription upon a bell in Plumstead church: the letters presented grotesque figures.

MR. MOREWOOD'S GREAT TUNNEL SEWER.—Notice has been given that application will be made to Parliament in the coming session for leave to bring in a Bill to authorize the appointment of commissioners, or to incorporate a company, with power to construct the intercepting tunnels proposed by Mr. J. J. Morewood, for the conveyance of the metropolitan sewage into the marshes east of London for deodorization and utilization, and also to obtain the necessary funds, either from the Consolidated Fund, or by levying rates. Mr. Morewood calculates that he can thus dispose of the whole question of the metropolitan sewage, at one-third of the cost of the B* plan. It seems very doubtful, however, whatever be the relative merits of the proposed plan, whether, in the present state of the question, Parliament will pass such a Bill as this.

OXFORD ARCHITECTURAL SOCIETY.—A meeting of this society was held on Wednesday, 25th ult. the Rev. L. Gilbertson, B.D. of Jesus College, in the chair, when the Rev. E. Hobhouse, B.D. of Merton College, read a memoir of Walter de Merton. The lecturer regretted that no architectural remains of Walter de Merton's works were now in existence, except the choir of his chapel and small portions of his college. His little hospital at Basingstoke has entirely disappeared. At Maldon, neither in the church nor manor-house is there anything to revive the remembrance of the great and bountiful man who nursed his infant institution there.

THE ROYAL SOCIETY.—At the anniversary meeting held on the 30th ult. the balance-sheet showed that the receipts for the year, including sale of 1,500*l.* Consols, had been 4,841*l.* 18s. 4d.; the payments (including expenses of removal to Burlington House, 1,299*l.* 19s. 10d.!) 4,814*l.* 12s. 8d. The principal point in Lord Wrottesley's address was one made by Faraday in a lecture at the Royal Institution a considerable time ago—namely, setting forth how one set of observations may be found to bear on another set made elsewhere on a totally different subject, as illustrated by thirty years' daily observation of the sun's spots made in Germany, and a set of observations on the dip of the needle, the two showing decennially a certain connection. M. Chevreul, whose works on colour are known to our readers, received the Copley medal.

ON RETAINING THE SEWAGE OF THE METROPOLIS FOR AGRICULTURAL PURPOSES.—May I suggest that, if no plan has yet been propounded, or out of the many plans no comprehensive and satisfactory scheme has been devised and perfected, for the solution of this great question, an invitation should be given to all the scientific and practical men of the day to attend a conference, to be held either in London, Manchester, or Birmingham, to consider the different methods proposed, and to discuss the whole question in all its various bearings; at which meeting all the maps, sections, plans, and other documents should be produced, in order that some conclusion may be arrived at which shall be satisfactory alike to the agriculturist and the inhabitant of the metropolis?—T. G. D.

MEMORIAL IN GATESHEAD CHURCHYARD.—It will be remembered that the church of this town suffered from the effects of the terrible fire and explosion which swept away an immense mass of buildings, and destroyed many lives. The open space on both sides of the Tyne still remains, and presents the desolate appearance of a town which has suffered a long bombardment. Like the Great Fire of London, this visitation followed closely upon the ravages of pestilence, and has been the means of demolishing many unwholesome places. In order to preserve the memory of this event, a number of blocks of granite, of large size, and other matters, which were cast high into the air and fell through the roof of the church, have been grouped together, and inscribed as below:—

> "These stones, with burning timber and red-hot iron bars, were blown into the church by the explosion in Hillgate, Oct. 6th, 1854. Weight of the largest stone, about 6 cwt."

The adjoining church, which so narrowly escaped entire destruction, and has been repaired, although but few traces of antiquity remain, is of early date, and has various historical associations.

Improved Slate Working.—An improvement, intended to supersede the dangerous system of blasting out the slate masses, has been introduced into several of the Welsh quarries, and hitherto the operations are said to have been successful. Long square slabs, a yard and a half wide, can be worked out at the rate of 21 inches an hour, without waste.

Consecration of St. Paul's Church, Westminster-road.—The newly-erected church, dedicated to St. Paul, and situated in the Westminster-road, St. George-the-Martyr, Southwark, was consecrated on Wednesday last by the Bishop of Winchester. The church will hold 1,200 persons: 460 sittings are free, and 200 are to be let at nominal rentals. The architect was Mr. W. Rogers, of Cannon-row; and the builders, Messrs. Myers, of Lambeth.

"Rotten Row," Hyde Park.—The following etymologies of this name have been suggested in the pages of *Notes and Queries*:—1. "Routine Row," from processions of the church passing in that direction. 2. From its passing by buildings that were old, or "rotten." 3. From the Latin word "Rota." 4. From the woollen stuff called *rateen*. 5. From *rotteran*, "to muster"—*rother*, *rots*. Another writer in that periodical says,—"I had imagined that Rotton Row was so termed simply because its gravel is always kept *rotten* or loose, so that horses are able to gallop over it without the least danger of falling. However, in some extracts from *Souvenirs of Travel*, by Madame Octavia Walton le Vert, in the *Critic* for October 15, the American lady supplies us with the following definition of the word:—'Rotten Row (from the French "Route du Roi") is reserved for those on horseback. The Queen's carriage is alone permitted in this exclusive place.'"

TENDERS

For new Music Hall proposed to be erected at the new "Crown and Cushion," Westminster Bridge-road. Mr. W. Smith, architect:—

Chappell and Winter	£1,155 5 0!
Restall	845 0 0
Kent	799 0 0
Fish	799 0 0
Dennis	795 0 0
Patrick	775 0 0
Hill	759 0 0
Lansdowne	730 18 6
Moore	700 0 0
Mann	690 0 0
Pedlington	685 0 0
Barker	640 0 0
Dover	600 0 0
Rivett	583 0 0
James S. Lemon	574 0 0
Jarvis	550 0 0!

For sundry works at the "Ship" tavern, Greenwich, for Mr. Thomas Quartermain. Mr. Alfred Cross, Blackheath-road, architect:—

Mansfield and Son	£1,108 0 0
Lucas, Brothers	1,089 0 0
Piper and Son	1,034 0 0

For the completion of the Coal Depôt at Deptford, for Messrs. Smith and Co. Messrs. Tillott and Chamberlain, architects. Quantities not supplied:—

Laurence and Son	£2,292 0 0
Rider	2,140 0 0
Mills	1,998 0 0
Hooker	8,986 0 0
Piper and Son (accepted)	1,973 0 0

TO CORRESPONDENTS.

A Query. The Temple.—Can any of your numerous correspondents tell which house in the Temple was some years since called "The Adelphi House"? It had a grove of trees and a fountain on its grounds, and was known about Johnson's time.—A. B. C.

S. C. R. (will appear).—H. T.—J. H. (under our limit).—B. P. (ditto).—M. (ditto).—A. C.—J. P. K.—G. G. S.—C. W.—B. G.—J. S. L.—Clan Chattan (declined with thanks).—K.—T. K.—C. W.—E. J.—C. P. R.—W. P.—Inquirer—A. B. C. (12 feet of 1½-inch *strong* lead pipe is said to weigh 53 lbs.; of 1¼-inch pipe, 72 lbs.; and of 2½-inch 100 lbs.)—L. M. S.—J. H.—Felix (rather a full description of huts for the Crimea appeared in an early volume of the *Builder*)—Rev. J. R. B.—W. O.—E. R.—W. C.—W. H. (next week).—J. P.—An old Subscriber (Mr. Scott Russell is the constructor of "The Leviathan"; Mr. Brunel, the originator and designer).—H. L.—J. G.—B. L. T.—C. G.—W. C.

Books and Addresses."—We are forced to decline pointing out books or finding addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and not to the Publisher.

ADVERTISEMENTS.

WANTED.—Mr. EDWARD BANTON, many years Surveyor and Accountant to one of the principal London firms, makes up accounts, measures and values work at 2½ per cent. Quantities priced, from 10s 6d. Bills of extras examined for architects. Highest references if required.—Address, 3, Lower Brunswick-terrace, Barnsbury, Islington.

APPOINTMENT WANTED.—A gentleman of active habits, having a good knowledge of commercial business, speaking French and German, and practically acquainted with the duties of a secretary and with assurance business, OFFERS his SERVICES in any occupation of a gentlemanly character, for a moderate remuneration—suitable employment being his principal object. The highest testimonials will be given, and security if necessary.—Address, W. W. B. Office of "The Builder."

BUILDER'S CLERK.—WANTED, in a West-end Establishment, a YOUNG MAN accustomed to the duties of a Builder's Office.—Apply to G. G. Office of "The Builder."

TO ARCHITECTS.

AN ARCHITECT, whose time is not fully occupied, would be happy to assist any member of the profession at his own house or otherwise. The advertiser is a good designer, well up in English and Italian architecture, has had much experience in ecclesiastical work, and is accustomed to prepare perspective and all other kinds of drawings. Terms most reasonable.—Address, A. B. C. Steele's, 2, Spring-gardens.

A THOROUGHLY practical CLERK of WORKS is desirous of a RE-ENGAGEMENT. Is fully qualified to superintend the erection of any extensive works, or measure any works.—Address, HENRY, Post-office, St. Alban's, Herts.

TO CARPENTERS AND JOINERS.

A YOUNG MAN, aged 22, who has been used to the bench and jobbing work, wishes for CONSTANT EMPLOYMENT or as an IMPROVER at the BENCH for one or two years. Wages 1l. 1s.—Address, C. W. 24, Stafford-place South, Pimlico.

TO ARCHITECTS AND OTHERS.

AN ARCHITECT, of several years' practice in London, during which he has carried out works to the extent of between 40,000l. and 50,000l. is desirous of ENTERING the OFFICE of an ARCHITECT of good standing, or of an appointment as Surveyor on an Estate, either in this country or in the English colonies: the greater the retirement, the more preferable the appointment. Terms, depending on locality, from 2l. 12s. 6d. to 3l. 3s. per week, at eight hours a day, to an architect; and from 200l. to 300l. per annum as surveyor on an estate.—Address, by letter only, to Mr. THOMAS MEYER, 61, Lincoln's Inn-fields, W.C.

AN ARCHITECT'S ASSISTANT is desirous of a RE-ENGAGEMENT.—Address, Mr. G. CASWELL, 2, New-street, Spring-gardens, Charing-cross, S. W.

TO PLUMBERS AND BUILDERS.

A YOUNG MAN is in want of a permanent SITUATION as a THREE-BRANCH HAND, town or country.—Direct, W. C. Office of "The Builder."

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

A FOREMAN, of great experience, now principal Foreman of Patternmakers and Carpenters, to a most extensive firm, wishes to meet with an ENGAGEMENT.—Address, H. W. G. Post-office, Mount-street, Lambeth, S.

TO ARCHITECTS, &c.

A THOROUGHLY efficient ASSISTANT, with thirteen years' constant and varied experience, in the offices of the most eminent architects in town, a first-rate and rapid designer and draughtsman (geometrical, ornamental, and perspective), is desirous of an ENGAGEMENT, either temporary or otherwise, or to undertake any description of professional work at his own residence.—Address, A. B. 9, Otto-street, Royal-road, Kennington-park, S.

TO ENGINEERS, SURVEYORS, AND BUILDERS.

A GOOD DRAUGHTSMAN, experienced with the mensuration of artificers' work, surveying, levelling, and machinery, wishes to ENGAGE with the above parties. A moderate salary required. Best references can be given.—Address, X. Y. Z. Post-office, Pentonville.

TO BUILDERS AND SURVEYORS.

AS IMPROVER, in a Builder's Office, a Young Man of good address, who writes and draws well, and practically understands detail and construction. Salary or no salary.—Address, with particulars, IOTA, Post-office, Brompton-row, S.W.

AS CLERK.—A YOUTH wishes to meet with a SITUATION as above. He is steady, and of persevering habits; can square dimensions, is quick at tracing, writes a good hand, and is willing to make himself generally useful. Three years' good character from last employer, and can be strongly recommended.—Address, A. S. H. 92, Tatchbrook-street, Pimlico, London, S. W.

TO ARCHITECTS, BUILDERS, &c.

A PRACTISED DRAUGHTSMAN wishes for an ENGAGEMENT.—For particulars, address L. L. 7, Knight's-place, Wandsworth-road.

AS CLERK of WORKS, a thoroughly practical Man is desirous of a RE-ENGAGEMENT. References from previous engagements unexceptionable. — Address, C. J. Mr. Hartley's, 13, Crown-street, Soho, W.C.

TO MASTER PLUMBERS AND BUILDERS.

A THOROUGH PLUMBER wishes for EMPLOYMENT. Has no objection to gas-fitting.—Address, B. A. 22, New Millman-street, Foundling.

TO LAND SURVEYORS AND CIVIL ENGINEERS.

A RE-ENGAGEMENT WANTED, by a first-class SURVEYOR and LEVELLER, capable of conducting and carrying out any survey, having had extensive practice, and executed several large surveys under the Board of Health and Poor-law Board for rateable and sewerage purposes, for which first-class certificates have been awarded. Terms moderate, with reference unexceptionable.—Address, Z., F. Orton, Esq. Bottesford, near Nottingham.

TO ARCHITECTS.

AN ARTIST, of known ability, and a Foreman Painter, of great experience, are prepared to UNDERTAKE, conjointly, first-class HOUSE PAINTING and DECORATION, under architects only. Designs furnished. Reference to works executed.—Address, A. Z. 20, Gloucester-place, Camden-town,

TO CIVIL ENGINEERS, LAND-SURVEYORS, &c.

A COMPETENT ASSISTANT (aged 30), having just finished a large first-class survey and map, is open for an ENGAGEMENT, either at home or abroad; would be glad to undertake first-class surveys and guarantee accuracy. Satisfactory references.—Address, WM. STEPHENSON, Post-office, Brighton.

TO ARCHITECTS.

AN ARTISTIC COLOURIST and PERSPECTIVE DRAUGHTSMAN OFFERS his SERVICES on moderate terms. — Address, DELTA, Library, 29, Denbigh-place, Belgravia.

TO ARCHITECTS.

GENTLEMEN requiring ASSISTANCE, can have interior or exterior perspectives, working details, or other drawings, executed with ability and despatch by the advertiser (OMEGA), at his residence, 17, Hill-street, Knightsbridge, S.W.

TO SURVEYORS AND BUILDERS.

THE Friends of a YOUTH, aged 14, are desirous of an INDOOR APPRENTICESHIP for him in a respectable family, where his domestic comforts would be attended to, and where he would have an opportunity of acquiring a thorough knowledge of the above business in all its branches.—Address, J. E. Post-office, Wantage.

THE Advertiser is desirous of obtaining an ENGAGEMENT, in an Architect's Office. He is a neat draughtsman and has been ten years in the profession.—Address, A. Z. 10n, Cumberland street, Hackney-road, N.E.

TO ARCHITECTS, SURVEYORS, AUCTIONEERS, ESTATE AGENTS, &c.

THE Advertiser, aged 25, is desirous of a RE-ENGAGEMENT as ASSISTANT to the above, where a good practical knowledge, and faithful discharge of the several duties enjoined, would meet with due appreciation. Satisfactory and ample references happily given. Testimonial from late engagement, and security, if required. No objection to the country or Continent. Salary not a primary consideration.—Address, C. 7, Thanington-place, Wincheap, Canterbury, Kent.

THE Advertiser, who has had seven years' experience in several good offices, is desirous of an ENGAGEMENT with an Architect.—Address, J. W. 7, Bloomsbury-place, Bloomsbury-square.

TO BUILDERS, &c.

THE Advertiser wishes for a RE-ENGAGEMENT as SHOP, or GENERAL FOREMAN. Fully qualified: has been employed by some of the largest firms in town, to whom reference can be given. Age, 30.—Address, A. B. 19, Canal-terrace, York-road, N.

TO ARCHITECTS AND SURVEYORS.

THE Advertiser, who is a good DRAUGHTSMAN and PENMAN, proficient in squaring, abstracting, and billing dimensions, and in the routine of an office, and who has had some experience in measuring and estimating, is desirous of an ENGAGEMENT, temporary or otherwise.—Address, A. B. 3, Britannia-terrace, Fulham road, Brompton, S.W.

TO ARCHITECTS AND SURVEYORS.

WITH a VIEW to PARTNERSHIP.—A Gentleman is desirous of an ENGAGEMENT as an ASSISTANT. Salary not an object.—Address, in confidence, to J. B 35, Portman-place, Maida-hill, W.

TO PLUMBERS AND BUILDERS.

WANTED, a SITUATION as PLUMBER in the country, or to go abroad; can do gas-fitting, &c. Good reference.—Address, W. CLARK, 47, James-street, Kennington-park.

TO BUILDERS, JOINERS, &c.

WANTED, a SITUATION by a first-rate JOINER, who thoroughly understands the working and management of all sorts of joiners' and saw-mill machinery; can make and temper tools, a good saw-sharpener, and well acquainted with mechanics. Good testimonials.—Address, G. B. Office of "The Builder."

TO BUILDERS AND PLUMBERS.

WANTED, by a steady, experienced PLUMBER, a SITUATION. Age, 36 years. Can fill up time at painting and glazing if required.—Address, S. W. No. 13, Fast-street, Kennington-road, Lambeth.

WANTED, by a Young Man, a SITUATION as GRAINER, PAPER-HANGER, and PAINTER.—Address, W. S. B. at Mr. Whiting's, Southampton-street, Camberwell.

TO CARPENTERS, JOINERS, AND BUILDERS.

WANTED, by a strong, active Lad, who has served two years at the trade, a SITUATION for a term of years.—Address, S. T. No. 11, King-street, King's road, Chelsea, S. W.

TO ARCHITECTS AND BUILDERS.

WANTED, by a neat ARCHITECTURAL DRAUGHTSMAN and EXHIBITOR, an ENGAGEMENT to prepare and colour geometrical and perspective drawings. Was articled in London; has been engaged as clerk of works. A moderate salary required, and much less where he could improve himself in taking out quantities.—Address, H. L. "Freeman" Office, 21, Warwick-lane, Paternoster row, London.

TO MASTER PAINTERS, BUILDERS, &c.

WANTED, by an experienced GRAINER, WRITER, and GENERAL PAINTER (would make himself generally useful), a SITUATION in the above line. Country not objected to. Can be well recommended.—Address, M. G. care of Mr Richardson, 3, Cambridge-place South, Kingsland-road, London, N.E.

TO CARPENTERS, &c.

WANTED, by a respectable Young Man, aged 23, a SITUATION in a JOBBING SHOP, or otherwise; is well acquainted with town and country trade, and has a good knowledge of cabinet-work, polishing, &c. No objection to any part of town or country. Wages not the object.—Address, A. Z. 34, Roupell-street, Lambeth.

WANTED, by a Young Man of sober habits, a SITUATION as IMPROVER at Marble or Stone Work. Is willing to make himself generally useful. Low wages only expected.—Address, A. F. Office of "The Builder."

WANTED, by a practical Man a RE-ENGAGEMENT as BUILDER'S FOREMAN. Good references can be given. Locality no object.—Address C. Y. No. 3, Crescent, Jewin-street, City.

TO ARCHITECTS AND SURVEYORS.

WANTED, by an ASSISTANT, a SITUATION, in town or country. Good draughtsman, and quick at figures.—Address, H. O. 16, Great Marlborough-street, W.

TO WHOLESALE AND RETAIL TIMBER-MERCHANTS.

WANTED, by the Advertiser, a SITUATION as FOREMAN and SALESMAN in the above line. Has been twelve years in his present engagement, and is practically acquainted with every branch of the trade.—Address, A. B. C. 3, Wood-street, Chelsea.

WANTED, by a Young Man, aged 22, a SITUATION in a builder's or contractor's office, in town or country. Is a neat draughtsman, expeditious penman, quick at accounts, can take out quantities, and measure up work. Has had experience with both an architect and extensive general country builders.—Address, Z Post-office, Northwich.

TO PARENTS AND GUARDIANS.

WANTED, a YOUTH, to APPRENTICE to the CARPENTERING; also, one to the BRICKLAYING and PLASTERING TRADES—out of doors. A premium expected. Also a Youth, about 16, to keep time and assist with the books in the Office.—Address, A. B. C. at Mr. Sloper's, Stationer, Holborn-hill.

WINDOW BLINDS.—TYLOR & PACE, Window Blind Manufacturers, 104, New Bond-street, and 3, Queen-street, Cheapside, London, submit the following PRICES of WINDOW BLINDS, which they can recommend as being made in the best manner:—Venetian blinds, per square foot, 9d.; best holland blinds, on rollers, 6d.; best ditto, on spring rollers, 9d.; gauze wire blinds, in mahogany frames, 2s.; perforated zinc blinds, in ditto, 1s. 10d.; outside blinds of striped cloth, 2s. Transparent blinds in great variety. Engravings, with prices and discounts to builders and the trade forwarded on application, post free.